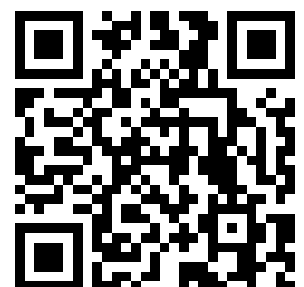


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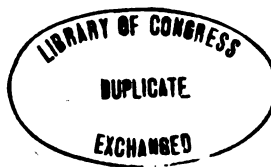
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AND FOR CIRCULATION IN

THE UNITED STATES OF AMERICA.

And In Europe, Asia, Africa, British North America, Central and South America, Mexico, West Indies, Australia, New Zealand, East Indies, China, Japan and the Sandwich Islands.

VOL. XVIII.—NO. 1.

NEW YORK, JULY, 1886

WHOLE NO. 110.

THE AMERICAN MAIL is the pioneer journal of its class, and was established to present the claims and to further the interests of American manufacturers and producers in every attainable market; also to be a medium for the extension of enterprise at every point, foreign and domestic, where an opportunity for the growth of trade might become apparent.

Its facilities for acquiring news of the greatest importance are unsurpassed. It has agents in every part of the world (as will be seen from a list published in its columns), and it is known in every commercial community. As its sphere of action is not limited by local influences, it represents the whole country. Having a wide circulation at home and abroad, it

is read by buyers in every line of trade, and it is regarded as a most valuable medium for information as to all kinds of goods, products and other matters of commercial importance. It reaches leading manufacturers and others concerned in all departments of industry, such as iron and steel production; mechanical construction and engineering; mining; cotton, silk, woolen and other textile interests; milling; and in fact every branch of American production, inventive skill and genius.

THE MAIL is kept on file at the different U. S. consulates; it is regularly sent to the most prominent and influential citizens and the chief officials of the States and nation. It is also to be found on the files of the different Boards of Trade, leading hotels,

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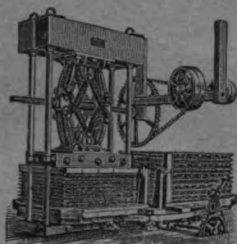
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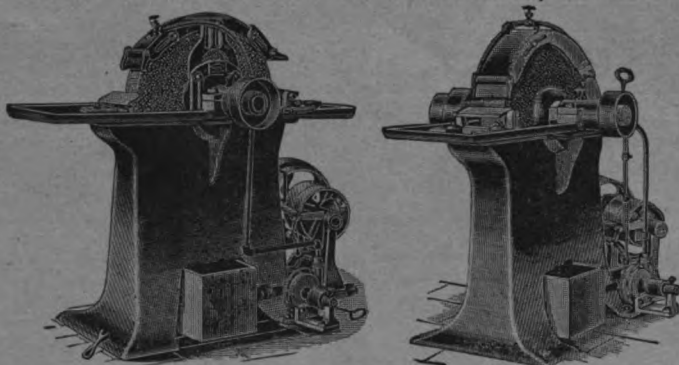
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All kinds of Grain and Clean Grass Seed,

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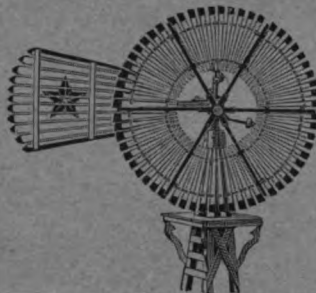
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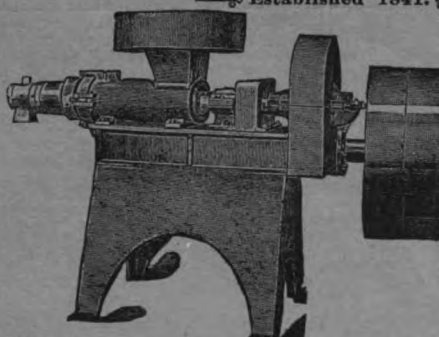
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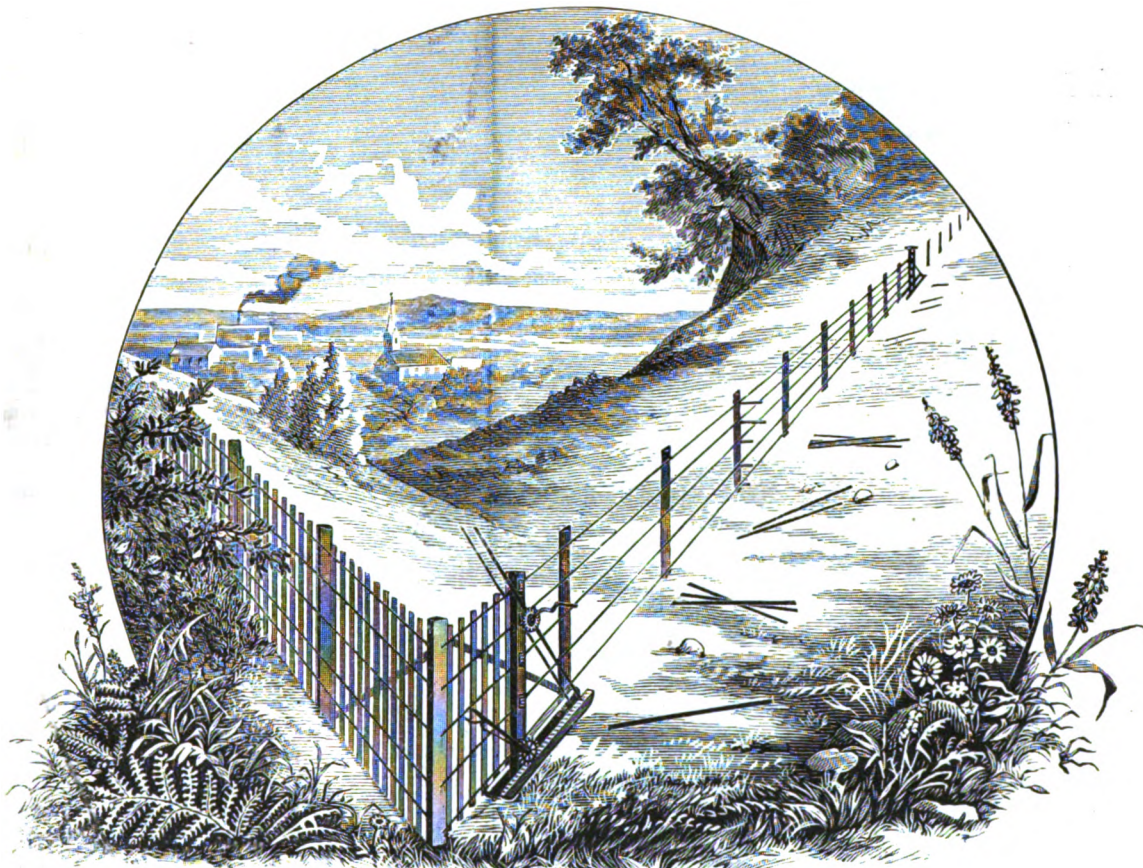
Engineering and Machinery.

Improved "Monarch" Fence Machine.

THE improved "Monarch" fence machine, manufactured by M. C. Henley and herewith illustrated, is designed for use in setting up wire and picket fencing. This machine is said to be unequalled for durability, strength and easy operation; it will "weave" a fence either up or

when ready for shipping or storing away, is folded up to occupy a space only 14 inches wide, 5½ feet long and 10 inches high, and weighs, complete, 90 pounds. Two illustrations showing the method of packing the machine and the tension frame are given on page 2. Besides the weaving and tension machines there is also one wrench, splicing tools and reel for use in unwinding the wire.

This machine will weave a fence using either one, two, three, four or five double strands of wire of any size. When using pickets, slats



IMPROVED "MONARCH" FENCE MACHINE.

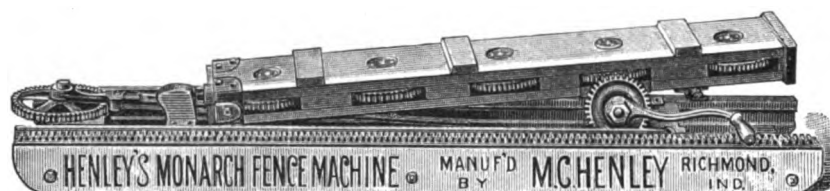
down hill, and at all times keeps the slats or pickets plumb. The machine is easily moved forward as the work progresses by means of a lever, which also forces the slats firmly between the wires by a single movement. To prepare this machine for storing away or shipping, the two nuts that hold the casting (to which the lever is attached) to the frame are removed and the casting taken off. Then, by loosening the screws which hold the braces, the weaver is turned forward until the braces drop down. Then it is laid back on the bottom frame, and in this position occupies a space only 20 inches wide, 6 feet long and 13½ inches high, and weighs 165 pounds. In putting up a fence the weaver is set at the end of the line at the left, and the tension device at the end of line, or anywhere along the line, at the right, as it will catch the wires at any point, and they do not have to be cut. When this tension machine leaves the factory it has wound on each of its five spools 30 feet of wire, and attached to the end of each of these wires is a device for holding two wires (or a double strand). This tension machine,

or boards thicker than five-eighths of an inch, three double strands of No. 9 or 10 wire are generally used, unless the slats or boards are very thick, and heavy No. 10 wire is recommended. When using slats or pickets three-quarters of an inch or thinner, three or five double strands of No. 12 wire should be used. When using thin slats they can be woven in from one to three inches (or more) apart, as desired, the distance between being governed by the number of twists given the wire between slats or pickets in weaving. This fence can be woven so as to turn rabbits, thus making a first-class fencing for nurseries, orchards and gardens. It is also said to be much the best fence for poultry yards.

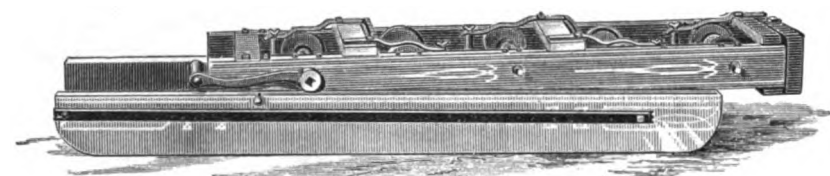
The advantages which this machine presents are as follows: A man and boy can weave from thirty to fifty rods of fence a day, although one man or a good stout boy can build the fence without any assistance, but with help of a boy to handle the pickets a fence can be built more rapidly; the wire is stretched the full length of the field before

the weaving is commenced ; any sized wire can be used, and with this advantage : using a large size wire the strongest fence can be made ; any size, length or style of picket or slat or board can be used, weaving all equally firm and solid ; it will make a fence over rough and uneven ground, or up and down hill alike, making as good a fence as on even, level ground, and, the machine being adjustable, the pickets are always woven plumb ; anyone can operate it and there are no parts to get out of order or repair ; a boy can work it as well as a man, it being light and easily managed ; it is made of the very best materials, and, with proper care, will last a lifetime. This machine is said to be the only machine that will force the slat or picket firmly against the wire, thus securing the slat in such a solid and permanent manner that it cannot be pulled out, and breakage is impossible. The fence made by this machine will turn all kinds of stock and is much stronger than any barb-wire fence, and completely obviates all danger of injury to stock.

By weaving past the posts, and fastening the wire strands to the posts with staples, and not nailing the slats to posts, thus keeping the wood parts from coming in contact with each other, it will not hold moisture or rot. This is a very important matter, as all boards in board-fencing soon rot off at the post and this occasions continued expense for repairs.



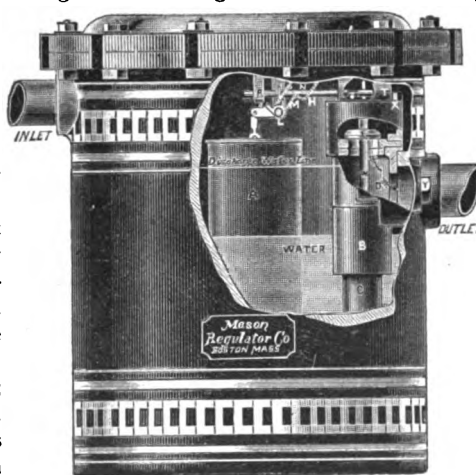
"MONARCH" FENCE MACHINE (FOLDED).



TENSION FRAME OF "MONARCH" FENCE MACHINE (FOLDED FOR SHIPMENT).

The "Mason" Steam-Trap.

THE "Mason" steam-trap, manufactured by the Mason Regulator Company and illustrated herewith, is designed for discharging condensation from steam-heating coils, vacuum pans, brewers' kettles and the like. The features of this apparatus are that the valve is in the upper part of the trap in the steam, and therefore cannot be clogged with dirt and scale from the pipes. A very large valve is operated, and as soon as the water rises to the "discharge line" it is instantly forced out to the full capacity of the outlet pipe. The main valve being operated by steam does not depend upon delicate mechanism for opening and closing. Condensation may be discharged at any height above the trap, according to pressure. The float is open, having the same internal as external pressure ; it therefore can never collapse. Within and fastened to the side of the shell of the trap is placed a cylinder, B. Within this is a piston connected by the stem W to the valve E. At T is a small perfectly balanced valve, supported by the yoke R, and controlling a small steam passage which admits steam under the piston in B. At N is a weight to counterbalance the bucket A. The trap operates as follows : As the water enters the trap a portion fills the bucket A, which drops, lifting the weight N, and closing the same valve T. The water continues to enter, and passing up the pipe C enters the chamber X, and being under pressure forces the valve E hard on its seat. The water rises in the trap until it reaches the "discharge line," when the bucket A becomes so light that the weight N overbalances it and falls, lifting the bucket and opening the valve at T. This lets the steam pressure underneath the piston in B, which being twice the area of the piston E forces it from its seat and the water is forced up the pipe C, through E into the outlet. When the water in the trap is exhausted, the bucket falls, the small valve is closed, the pressure in B is removed, and the valve E is seated until the water rises again to the discharge line.



THE "MASON" STEAM TRAP.

The "Samuel Johnston" Self-Rake European Harvester.

AMONG the many prominent American inventors in harvesting machinery few, if any, deserve more lasting recognition than Samuel Johnston. Commencing thirty-five years ago, he has devoted the greater part of an active life to a series of practical inventions, many of which are still found in whole or part in much of the present improved harvesting machinery. Considering the desirability of still further advance in this line, he has for the past ten years been steadily at work to reduce a self-binder to almost as simple a machine as an ordinary reaper, having in mind the production of a binder combined with a Johnston rake. After various efforts, each having successful

features, but still presenting objections to the mind of the inventor, the desired result has been found in the Samuel Johnston Self-Rake Binder, a machine which is easy of draft for two horses, simple in construction, perfectly balanced and without side draft. It will handle any grain that grows and is as easily understood and managed as a reaper. It is provided with a knot-tier, in which the pieces are all large and few in number and so constructed that any farmer can operate them without calling in outside assistance. The machine has been thoroughly tested in the field and the manufacturers know of no part that can be improved.

The machine thus produced and illustrated herewith has undergone severe trials under all possible conditions of grain and has withstood these tests satisfactorily. In this machine the cutting mechanism is similar to all reapers, and while in the self-rake reapers the rakes operate intermittently across the entire platform where the loose sheaf is to be discharged, yet in this machine all of the rakes are made to perform a similar function across a section of the table.

The practical operation of the machine in the field is as follows : The grain is gathered to the cutters and on to the platform by a Johnston reel rake. This renders it possible to handle any grain that grows, either long or short, straight or tangled, and also ensures a perfectly clean cut. Up to this point the machine is the same as the best reapers. The grain deposited on the platform by each successive arm of the rake is immediately gathered into a bunch by the forward motion of the platform gathering-rakes moving toward the centre from either side. The backward motion of the platform-rakes takes the bunch

into the binding mechanism and this is continued until sufficient grain for a bundle is placed in the binder, when it is automatically set in motion. The bundle is discharged to the ground by a mechanism which brings the heads around so as to lie parallel with the path of the machine. This always gives ample room for the team on the next round, even if the grain should be eight feet long or more. The trouble with low-down binders heretofore has been to make a separation of the butts of the cut grain from the uncut. On this binder the platform-rakes move the cut grain instantly five feet from the standing grain, which makes a separation of the butts perfectly practicable ; in this way the grain gathered by one arm of the rake is moved into the binder separately from that gathered by the next arm of the rake. The time of moving the rake across the platform, the movement of the platform gathering-rakes and the time of tying the knot and discharging the bundle are the same ; and these parts are arranged in such

relation to each other that the needle in putting the string around the bundle descends *between the bunches* instead of *through the stream of grain* as in all other systems.

The machine is so arranged as to put no weight on the horses' neck when the driver is sitting on the seat or standing on the ground. In this respect it is the same as a wagon. There is no side draft. The ground wheels are in a line, making it easy to turn at the corners. The weight of the machine is about 1,200 pounds and is easy draft for two 1,000-pound horses. The height of the cut is instantly changed without stopping the speed of the team or the driver leaving his seat on the machine. It may easily be done by a boy.

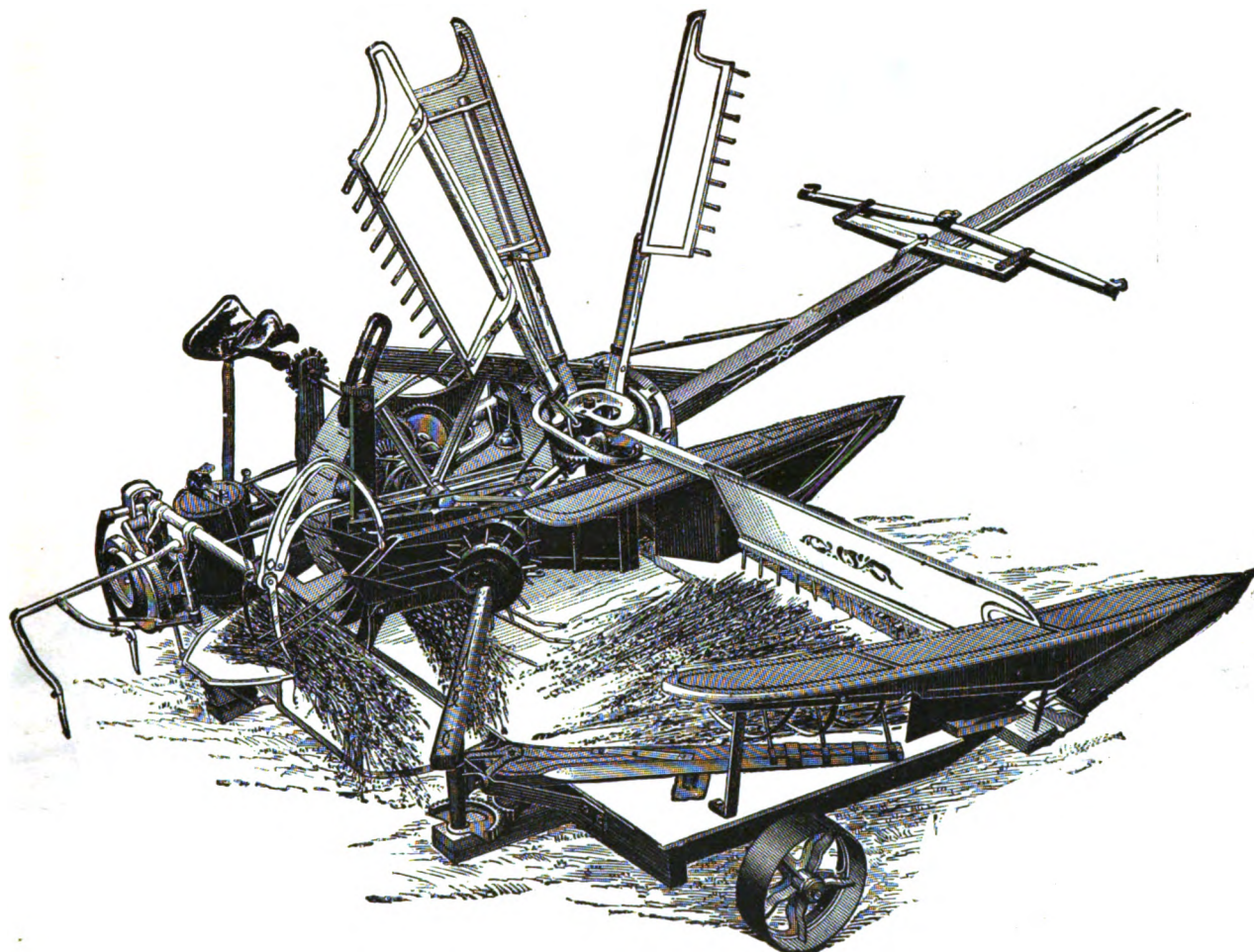
The knot-tying mechanism is also an entirely new departure and differs entirely from all other systems now in use. The motions of all parts of the tyer are reciprocating instead of rotary, and by this means

than any other self-binder yet built. A complete catalogue will be mailed free by addressing Samuel Johnston & Co., Brockport, N. Y., U. S. A.

Band-Saw Sharpener.

VARIOUS automatic machines have been devised for the purpose of sharpening circular saws, but until now there has been none which was adapted to doing the same work on small band-saws. With the growth of the band-saw in favor, so that every woodworking establishment has one or more of them, the problem of rapidly and accurately sharpening them has become important.

A new machine for use on small band-saws has just been brought out. The saw is carried on two horizontal pulleys, which are adjustable to fit different lengths of saws. The driving-shaft connects by a belt



THE "SAMUEL JOHNSTON" SELF-RAKE EUROPEAN HARVESTER.

so much variation is given to the action of the knife which cuts the string that the knife may be ground off nearly three-fourths of an inch without making any adjustment of other parts necessary. This means in actual use years of wear and then only a new knife could be put in for a trifle and again be ready without other adjustment. The knot-tyer proper consists of eleven pieces, which are all bolted and riveted to their places, so that the necessity of having skilled mechanics to operate the binder is obviated. This mechanism is patented in all foreign countries.

Only some of the essential points of merit of this machine, as claimed by the manufacturers, need be enumerated here. These are as follows:

With two horses the machine will cut a clean five-foot swath in any crop on any land; it will leave the grain in bound bundles, in a gaves for hand binding or in a swath, at the will of the operator; it will pass through a ten-foot gateway and will work equally well on hilly or smooth land. The knot-tyer is as positive in operation as the gearing which drives the sickle; any size or kind of twine may be used and any size of bundle can be made at will.

The entire machine contains fifty fewer pieces in its different parts

with the shaft on which the emery-wheel is hung, and by means of a worm with the feed-shaft. The feed-shaft carries an eccentric, upon which rests the lever, by means of which the emery-wheel is raised and lowered as the teeth of the saw are moved into place.

The feed-finger is attached to a perpendicular lever pivoted at the lower end, and which is moved by a crank at the end of the feed-shaft. The crank connects with the feed-lever by means of a block worked by the crank in a groove in the lever. The crank can be adjusted to or from the centre of the feed-shaft, thus allowing for any distance between teeth. Any desired hook can be obtained. The saw is stationary during half the revolution of the feed-shaft, and during that time the wheel grinds the face of a tooth. While the saw is being moved forward the emery-wheel slowly rises, grinding the back of the next tooth.

The framework which carries the saw is adjustable to various widths of saws by means of a hand-wheel and screw. The gearing of the machine is such that, with the driving-shaft running at 1,200 revolutions a minute, the emery-wheel makes 3,300 revolutions a minute and feeds 100 teeth per minute, the average capacity of the machine. So steady is its motion that an emery-wheel 3-32 inch in thickness is used.

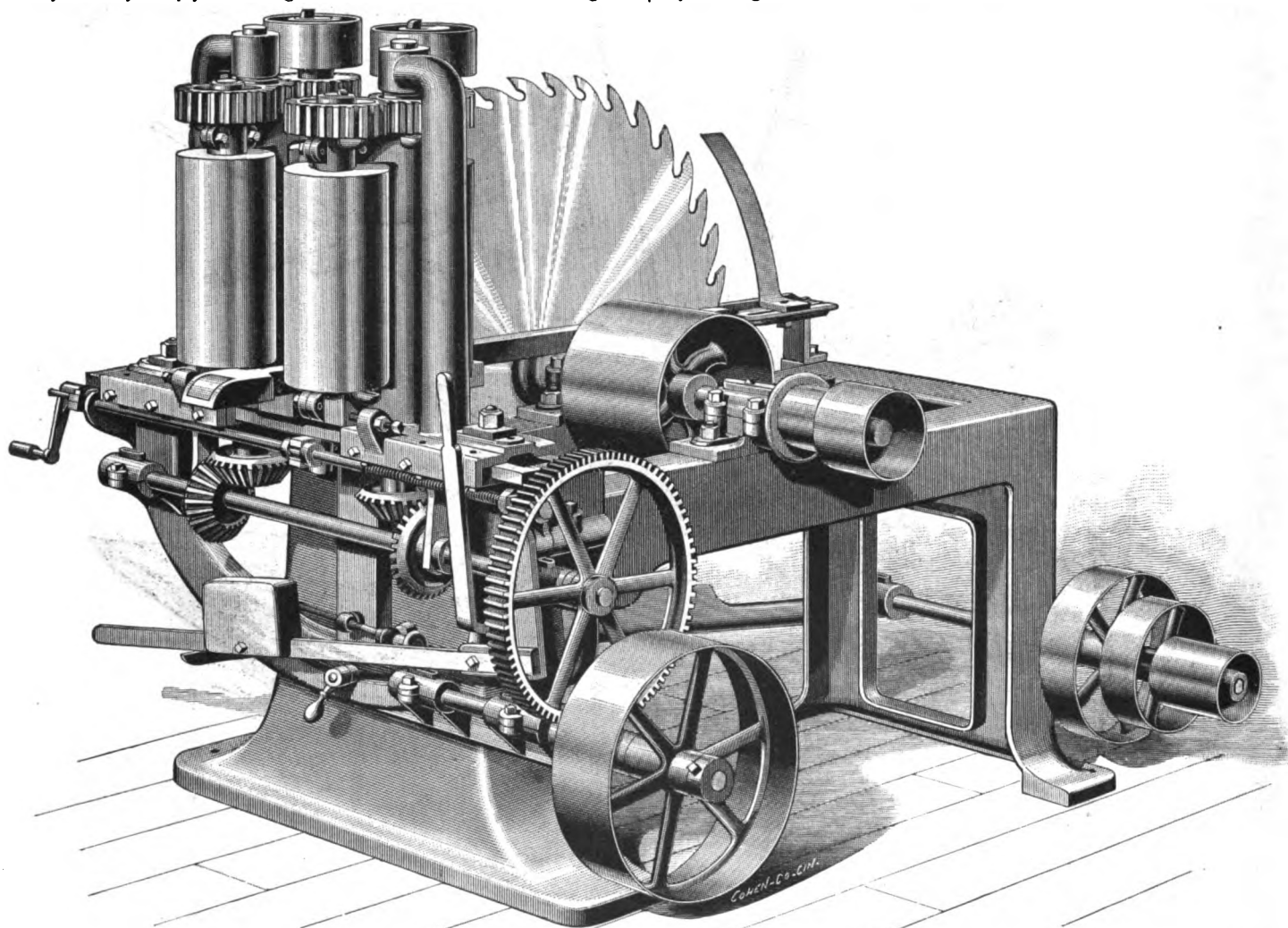
New Resawing Machine.

THE cut on this page represents a new circular resawing machine recently completed by the Egan Company. This machine is built to take a saw thirty-six or forty-two inches in diameter and will be found rapid and economical in its work. The blade is a taper-ground saw of the best make, and being very thin at the teeth the kerf is very light. The arrangement for beveling all of the rolls at one motion is very convenient and saves a great deal of time in adjusting.

The frame is designed for great strength, and sits very solidly on a broad base. The feed consists of four heavily-gearied rolls with an improved patent gearing, and the frame which carries the four feed rolls angles on the main frame in such a manner that all four rolls can be adjusted by simply loosening one hand-lock nut. The setting and

Automatic Cut-Off Engine.

IN this engine no especial attention is called to particular form of bed-plate or other parts. The particular features are the valve used and the means employed to bring about sharp cut-off, free exhaust and small clearance. The valve gear consists of a main valve with a riding cut-off valve, the latter being driven by a separate eccentric, and the point of cut-off is adjusted according to the load of the engine by the governor raising or lowering the cut-off eccentric-rod, thus decreasing or increasing the travel of the cut-off valve. The cut-off valve is connected to a rock arm which is keyed to a rock shaft, and on the outer end of this rock shaft is a curved rock arm, which may be called a segmental arm, over which slides a box sleeve, having adjustable gibs at the ends and trunnions on the sides. The cut-off



NEW RESAWING MACHINE.

angling is done by an adjusting screw, enabling the operator to adjust the rolls accurately to any bevel. The rolls are self-centring; that is, a board one inch thick may be followed by another an inch and a quarter thick, and both boards split in the centre; or one pair of rolls can be made rigid by loosening one hand-nut so as to make one side of both boards half an inch or more. The rolls come within half an inch of the platen or bed-plate, enabling the machine to split one-inch strips if necessary. The mandrel is of best crucible steel and runs in self-oiling boxes, and the mandrel with its boxes can be adjusted so as to accommodate any size of saw, and always keep it within the radius of the rolls so as to prevent any dodging, and compensate for wear on saw. The machine is fitted up in the most perfect manner and is furnished with one patent taper-ground saw of the most improved make. The No. 3 machine has a 12x8-inch pulley on the mandrel; a 36-inch saw is furnished, and should run one thousand revolutions per minute. The No. 4 machine has a 14x8½-inch pulley on the mandrel, and a 42-inch saw to run eight hundred revolutions per minute.

eccentric-rod has a jaw, or double hook, bored out to receive hardened steel bushings, which fit the trunnions on the sliding-sleeve; these holes in the jaw are cut out below to allow the jaw to be dropped over the trunnions. Then the steel bushings are pushed over the trunnions and into the bore of the jaw, thus locking the eccentric-rod to the sleeves. The bushings are prevented from coming out by little set-screws, as well as by the suspension links from the governor, which are connected to the same trunnions. The governor is of the Porter type. It will easily be understood that raising or lowering the sleeve on the segmental arm will increase or decrease the throw of the cut-off valve; at the same time this alters the time of movement of the eccentric, because raising and lowering the eccentric-rod has the same effect as if the cut-off eccentric was slipped around the shaft in a direction opposite to the shifting of the rod, that is, raising the rod will make the movement of the cut-off valve somewhat later in relation to the crank motion (assuming the engine to run over), and vice versa. This helps to reduce the travel of the sleeve on the segmental arm.

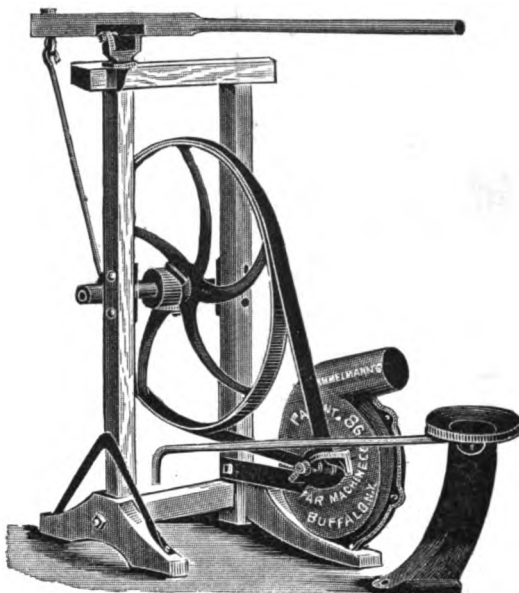
The "Star" Portable Forges.

THE engravings illustrate several portable forges and a blacksmith's hand-blower, the outcome of improvements made by the inventor of the earlier forms of these machines. By reference to the cuts it will be seen that only one large wheel is used, and that it carries the belt to the blower. In other blowers an intervening cog-wheel is necessary to communicate the power from the lever to this band-wheel, but the great and crowning feature of the Star blower is that all elements of friction and wear, as well as that greater element in the problem of the success of a forge and blower—working parts and consequent cost of production—are done away with or reduced to a small fraction of expense. This wheel is driven by a rack working up and down in the guides attached to the leg of the forge, which is best shown in the cut of the boiler-maker's forge. This rack engages with a pinion on the clutch, as seen in the cut of the machinist's forge, in a manner to give to the wheel the strongest possible power for the very least amount of force applied to the lever. So ingeniously is this clutch arranged that the application and release of the power is instantaneous with the action of the lever, without the least noise or slip. The application of the power here is ingenious and effective. The rack bears, or runs, in fitted ways almost its entire length, and arrangements are made by the use of set-screws for taking up any wear that may occur by reason of long use. It will be seen that a great element of friction as well as expense is done away with, in the fact that neither the rack nor pinion moves or revolves save when the lever is being used. It also runs perfectly noiseless, and will run

Machine for Making Pans.

IN this machine there is a male and female die brought together by means of an application of the power-press in such a way as to press a sheet of iron, tin, or other metal into a perfectly shaped pan, the female die having slots at the corners, so formed—one at each corner—as to fold the corners of the sheet into the form desired, when the male die is brought down upon the sheet that is laid in position upon the female die. This fold is made true and of proper shape by the slots at the corners of the female die, and only requires to be bent down by a mallet smoothly to the side of the pan to finish its form. The female die is made solid on a metal plate, which is fastened for use to the bottom or bed-plate by screws or bolts at each end, for the purpose of allowing it to be removed, that it may be replaced by another of a different form or size, which may be done to any number or extent. The male die is formed on the outside to the shape and size of the inside of the required pan, and fixed to a piston-rod bearing on the centre of the die, the end of the piston-rod entering a hole made with a taper in the centre stud, and fixed thereto by a pin, which can be withdrawn at any time for the purpose of changing the form and size of dies required.

The power-press is applied in a peculiar way, so that the male die is forced down upon a thin plate of metal laid upon the female die, pressing the sheet into the desired form and folding at the same time the corners of the sheet into a watertight plait. The power-press is composed of an upright frame fixed by screw-bolts to the bottom or foundation bed-plate at one side, and passing over the centre of



STAR BLACKSMITH'S HAND-BLOWER.

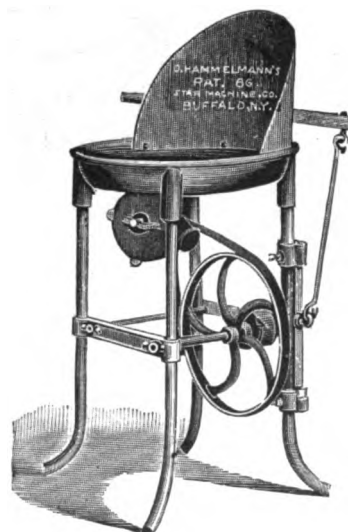
female die, pressing the sheet into the desired form and folding at the same time the corners of the sheet into a watertight plait. The power-press is composed of an upright frame fixed by screw-bolts to the bottom or foundation bed-plate at one side, and passing over the centre of



STAR MACHINIST'S FORGE, OPEN HOOD.



STAR PORTABLE FORGE, CLOSED HOOD.



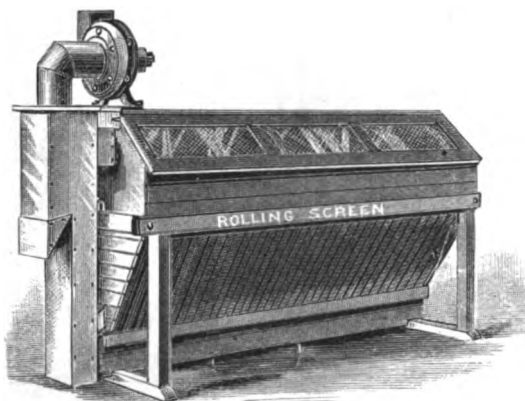
STAR PORTABLE BOILER-MAKER'S FORGE.

of its own momentum, when started, twice as long before running down as will any ordinary forge. The lever which communicates power to the rack is hung on a swivel, which allows the operator to move about the forge with freedom. So strong and well-applied is the power, that it is thought that scarcely more than half the effort is required on the part of the operator to start and maintain the motion that is required in any other lever blower. The Star Machine Company makes all of the usual shapes and styles of forges and blowers, each of which has the same important and improved method of operation. On account of the large saving the company has effected in the cost price of these forges, it is able to make a much finer job as to workmanship, and this it is determined to do for the purpose of having a forge which shall stand pre-eminent for its general perfection.

the dies, with a projecting arm, in which the piston-rod holding the small or male die slides up and down. This rod slides through a hole made in the projecting arm, and has channels at the sides in which guide-pins on one or both sides of the piston-rod slide, thus guiding the male die correctly into the matrix below, and limits the extent of the motion. The piston-rod is raised or pressed down by a sliding lever fixed at the top in a hole through a revolving shaft, on one end of which is the crank, connected with the top end of the piston-rod by a connecting-rod, the length of which may be varied for the purpose of adjusting the action of the dies exactly, the lever being held in the revolving shaft by a set-screw, so as to allow of its being pulled out to a greater length or made shorter, for the purpose of exerting more or less power, as required.

Rolling Screen.

AN illustration is given of a rolling screen which is made by the John Hutchison Manufacturing Company. The advantages of this machine for cleaning wheat will be understood and appreciated by millers, as it is said to be thorough in operation, removing all sand, grit, &c., from the grain. A suction-fan and trunk are attached to the machine, making it perfectly dustless. The screen is eight feet long, thirty inches in diameter, and is round; the wire-cloth is placed on the inside of the ribs, which gives a large amount of screening and scouring surface. The machine can be adjusted to any pitch desired; there is a conveyor under it for carrying off all of the screenings separated from the wheat. This machine is compact and strongly built, and is considered indispensable in cleaning wheat.

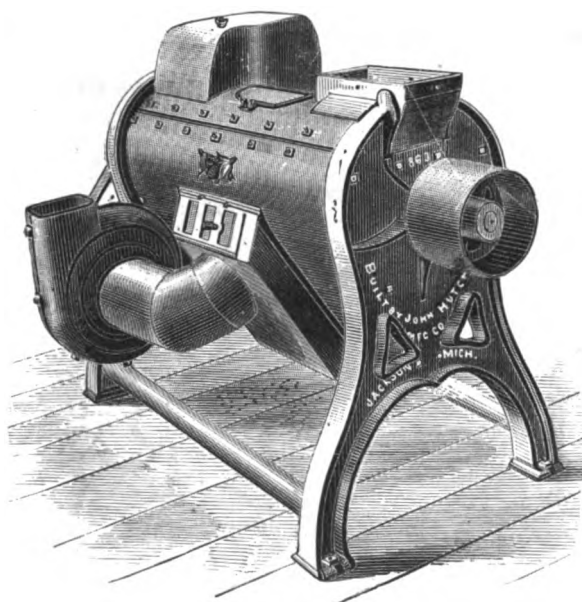


ROLLING SCREEN.

Dustless Iron Corn-Sheller.

HUTCHISON'S new dustless iron corn-sheller, of which front and rear views are presented, is intended for stripping the kernels from the cobs of Indian corn, or maize. This machine is simply constructed and is strong and durable; it is adapted to shell from 80 to 100 bushels of corn per hour. The corn in the ear is shoveled or spouted into the sheller upon a wrought-iron toothed cylinder, revolving inside of a perforated boiler-iron jacket. The shelled corn escapes through the perforated jacket into the suction spout, where it is cleaned, the dust being taken out through the spout, passed away by the fan and blown from the building, while the cobs are delivered from the opposite end of the sheller and fall upon the screen and shaker, which catch any kernels that may be thrown over with the cobs, and pass them back to the suction spout.

The back view of the sheller shows the delivery of cobs, screen and



Front View.

NEW DUSTLESS IRON CORN-SHELLER.

shaker. The work of the machine is regulated by moving the slide under the hood according to the condition of the corn, which will insure clean shelling whether the corn is wet or dry. The shaker is adjusted by a set-screw on the girt of the sheller, so as to give a proper slant for the free discharge of cobs.

The following are the features to which the John Hutchison Manufacturing Company, the maker of this machine, invites attention: The sheller is made wholly of iron, wrought-iron cylinder, with wrought-iron teeth, case-hardened, which are fastened to cylinder with a nut on the inside; the entire wearing and shelling surface is made of wrought iron, and the teeth being case-hardened makes it very durable; the cylinder is balanced perfectly, as well as all of the pulleys;

the bearings are turned and ground, insuring against hot-boxes; the fan-box can be adjusted to carry the dust at any angle desired; the pulleys are all turned, and are fastened to the shafts with set-screws.

Aventadora de Tamiz Rodante.

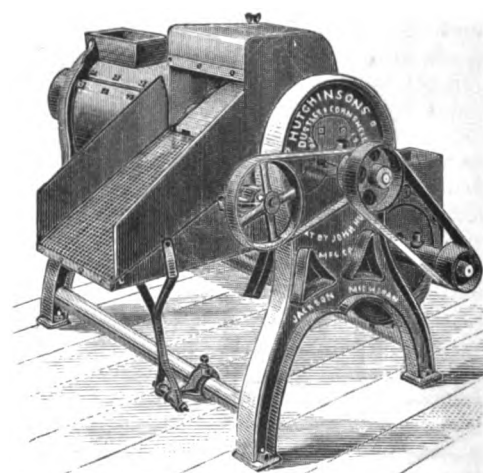
LAMAMOS la atencion sobre la aventadora de tamiz rodante que representa el adjunto grabado y que fabrica la compañía manufacturera The John Hutchison Manufacturing Company. Es máquina valiosa para limpiar, trigo. El tamiz mide 8 pies de largo, 30 pulgadas de diámetro y es redondo. La tela metálica está colocada sobre la parte interior de las varillas, con lo que se logra gran superficie de tamizar y limpiar. Un mecanismo, conductor debajo de la máquina aleja el zurrón que se separa del trigo.

Descascaradora de Maiz.

LAMAMOS la atencion hacia la descascaradora de maiz hecha de hierro y que no esparce polvo fabricada por la compañía fabril The John Hutchison Manufacturing Company, vista de frente y por detrás. Tiene gran resistencia y es duradera, descascarando de 80 á 100 bushels por hora. Se palean las mazorcas de maiz en la máquina de tal manera que caigan sobre el cilindro dentado y del receptáculo que lo incluye pasan al tubo de succion donde se limpian. Las tusas salen del lado opuesto del sacudidor segun lo muestra la vista trasera de la descascaradora en nuestra ilustracion.

Folding Machine.

A COMBINED book and paper folding machine is designed for the purpose of folding the sheets of both books and newspapers, which can be folded and delivered in one, two, three or four folds.



Rear View.

The sheets are taken direct from the printing-press from the fly, or are carried on by tapes in the ordinary way. The machine can also be fed by hand when desired. By omitting the first fold, book sections of sixteen pages are delivered accurately and rapidly. The sheets slide down inclined rods, which obviate the use of carrying tapes to transfer the sheets from one set of rollers to the other. The rollers are operated by means of bolts, which give great simplicity of construction and avoid the usual expensive and noisy system of cog-wheels. Only one pair of cog-wheels is used in the entire machine, which run very slowly, and on this account make very little noise. This folder is very simple in construction, and as its cost is very low it is specially adapted for use in small printing and binding establishments

Agricultural Implements.

OHIO is perhaps the first State in the Union for the manufacture of agricultural implements. It is natural for factories to locate near coal and iron regions. In Ohio, not only are coal and iron abundant, but the finest forests of hard-wood timber furnish manufacturers with the best material.

The Ohio Rake Company is located in the heart of this coal, iron and timber region at a point noted for its large number of manufacturing factories.

Herewith are presented illustrations of some of the agricultural implements manufactured by the company named.

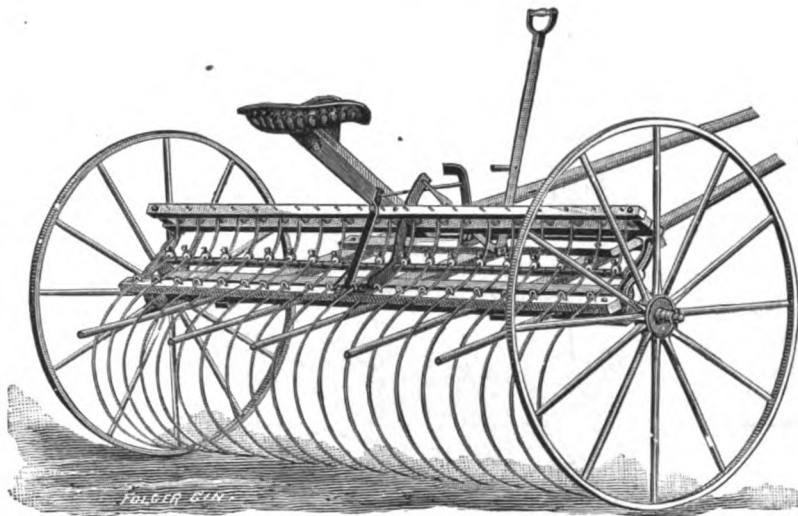
The "Hollingsworth" rake possesses many advantages, chief among them being simplicity and strength and durability for raking uneven surfaces. Besides the natural spring in the teeth belonging to a rake, this rake has an additional coil spring which relieves the strain when one or more teeth come in contact with an obstacle. Other rakes of the self-dump series, known as the "Ohio" and "Gazelle" self-dump rakes, are also built by the Ohio Rake Company particularly for export. The materials put into these rakes are hard and seasoned wood from the best timbers that grow.

Another useful implement for cultivating the soil is the "Perfect" pulverizing harrow, the special feature of which is that it has two frames connected with a swivel-bar which enables it to conform to any inequality of the ground that is too high to be leveled or too low to be filled, such as a ridge or a furrow. No part of the ground, therefore, remains untouched or skipped by this harrow, which is so constructed that in moving it from place to place it can be thrown into a sled with runners, as shown in cut representing it folded for hauling about the farm, whereby it can be moved with perfect ease. It can be quickly and readily changed for use in the field. Very many kinds of soil which cannot be cultivated with other tools yield to the "Perfect" harrow.

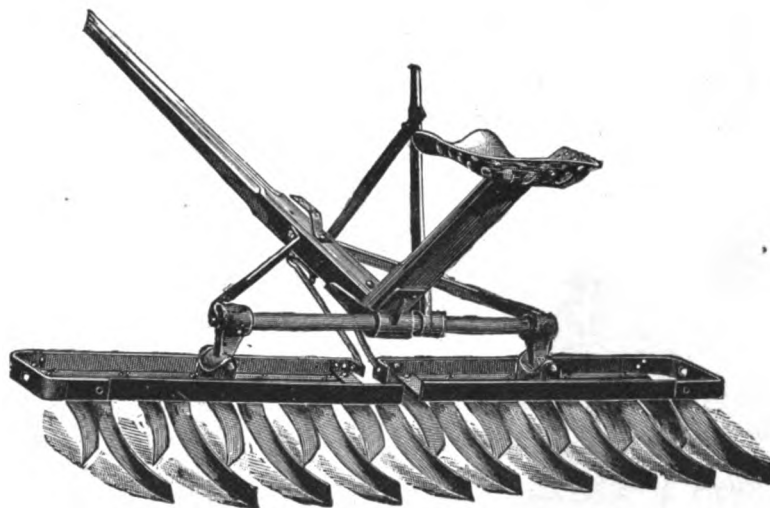
These agricultural implements are made from the very best materials and are warranted to be equal to any on the market. The rakes which are manufactured for export contain twenty-six and twenty-seven teeth each and can be had furnished with first-class steel wheels. The Ohio Rake Company also manufactures a one-hole hand corn-sheller.

Ackerbau-Maschinen.

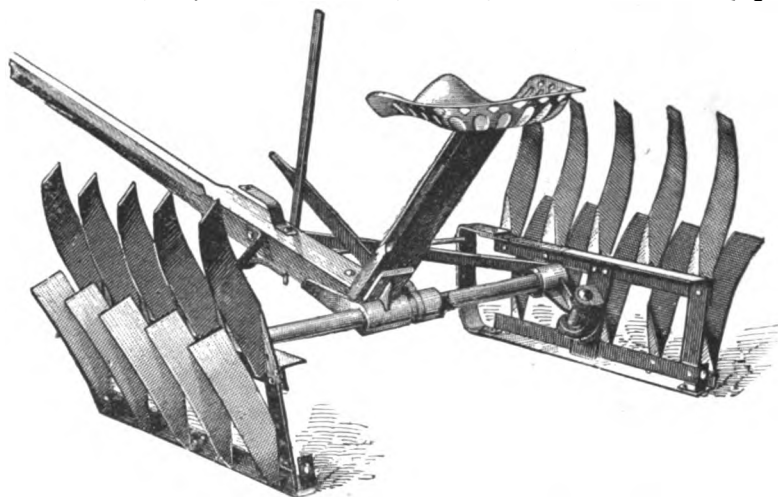
AMERIKANISCHE Fabrikanten von guter Maschinerie für den Ackerbau haben sich einen solchen Ruf erworben, dass es genügt, zu sagen, die auf dieser Seite dargestellten drei maschinen



"HOLLINGSWORTH" RAKE.



"PERFECT" PULVERIZING HARROW.



"PERFECT" PULVERIZING HARROW (FOLDED.)

Zerkeinerungs Rechen, in welchem zwei Gestelle mit einer Bürgelstange zusammenhängen, welche ihm in stand setzt, sich den unebenenheiten des Bodenoberfläche anzupassen. Dieser Rechen ist in einem der Holzschnitte als fertig zum gebrauch dargestellt und in einem anderen zusammengesetzt, in welcher letzteren Gestalt man ihn irgend wo auf dem Landgute weiterbewegen kam. Dabei bewerkstelligt man diese Veränderung seiner Lage mit der grössten schnelligkeit.

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Maquinaria Agricola.

LA buena reputación de que gozan los fabricantes Americanos de Maquinaria para uso de los agricultores ha sido tan firmemente establecida que basta, decir que se reconoce en. Todas partes que las son lo mejor de su clase hajo todos conceptos tanto por la eficacia que tienen como por la solidez de su construcción. La llaneada rastra "Hollingsworth" es un modelo de sencillez y resistencia y está provista de un mecanismo automático de volteo. Posee prendas especiales que la recomiendan al uso de los agricultores. Hay además otras dos clases, dotadas de ventajas características semejantes, que se fabrican a propósito para exportación, saliendo también del taller de la compañía manufacturera The Ohio Rake Company. La misma casa fabrica también la llamada grado de desmenujar tierra "perfecta." Está provista de unos armazones asegurados a una barra articulada que se adapta a los desigualdades del suelo. La ilustramos a la vez montada y desarmada, en cuyo último

Kalamazoo Spring-Tooth Harrow.

PREPARING the soil for the proper development of crops is one of the most important cares of the good husbandman. Bearing this in mind, the value of a good harrow, such as that illustrated, will be understood and appreciated. The Kalamazoo spring-tooth harrow, manufactured by D. C. & H. C. Reed & Co., and herewith illustrated, is presented as one of the best forms of cultivating machines in the market, because it can be utilized in doing the work of the cultivator, harrow, pulverizer and gang-plow. The circular form of the teeth, with the end inclining forward and presenting a sharp edge to the soil, materially lessens the draft as compared with other drag teeth. The oscillating hinges enable the harrow to adjust itself readily to uneven ground, while the frame working close to the surface prevents the sod from turning up and cuts down the elevations and fills up the depressions. The inclination of the teeth enables either of the latter to spring backward and upward when striking an obstacle, thus relieving strain and not interfering with the operation of the others. The teeth can be adjusted, at the will of the operator, so as to pulverize the soil to any depth, from one to eight inches, while the harrow can be moved from one place to another easily, by turning it upside down.

The teeth are made from the best quality of spring-steel and are warranted not to break or get out of set. The frame of the harrow is made from the very best seasoned oak, painted in vermilion colors, and varnished in superior style.

The manufacturers claim that there is combined in this one implement a *perfect* harrow, that will thoroughly stir the surface to the depth desired; a *perfect* pulverizer that will loosen, and thoroughly and perfectly pulverize the soil to the required depth, and a complete cultivator.

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Cultivators.

ANOTHER of the Kalamazoo agricultural machines is illustrated in the accompanying engraving of the "New Reed" spring-tooth corn and fallow cultivator, manufactured by D. C. & H. C. Reed & Co. This cultivator has established a reputation for efficiency and ease of operation. It can be readily handled, and this, with the rapidity with which it can be changed from a corn to a fallow cultivator, will, it is believed, commend it to every farmer who may use it.

An illustration is given of a one-horse corn-cultivator which is adjustable both in width and depth. The depth of either tooth, or any number of them, can be regulated to work from one to seven inches deep at the pleasure of the operator, thoroughly pulverizing the soil, and by the constant vibration of the tooth the grass and weed roots are

thrown to the surface, where a few hours' sun kills them effectually. The width can be varied to work from one and one-half to three and one-half feet, and having the same number of teeth, it being within about six inches as wide as the ordinary wheel cultivator, at less than one-half the cost. This cultivator is said to be particularly adapted

to the use of settlers on new lands with small improvements. For the cultivation of root crops, hops or nursery stock, this cultivator is considered indispensable, and its manufacturers, D. C. & H. C. Reed & Co., claim that it is the cheapest cultivator ever offered to the farmer, gardener, nurseryman or planter. It is well understood that the best cultivation develops the best crops and the largest profits; thus verifying the old maxim that one acre well cultivated is a source of more profit than two acres

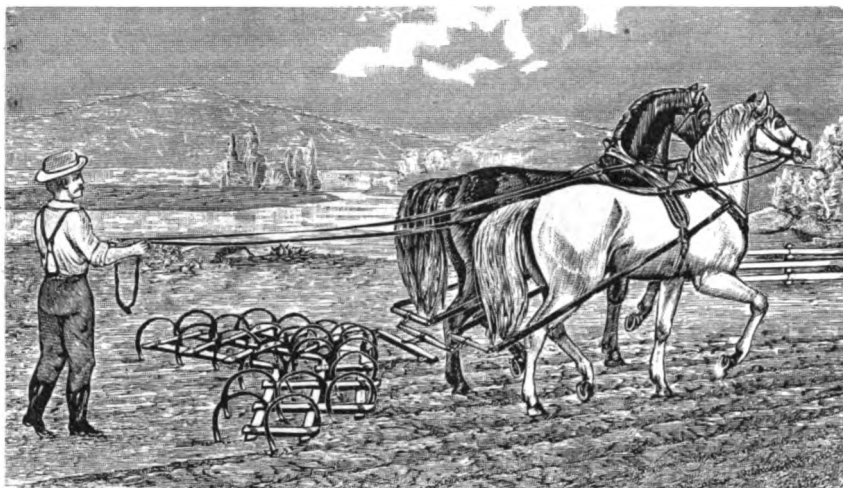
half cultivated, while the expense of fencing, plowing and reaping is the same. Thus, by the use of improved machines like those above referred to, the farmer gains advantage and profit, without any greater expenditure of time and labor than would be required to go over the same area of soil with more imperfect and less thorough implements. The manufacturers have received numerous testimonials in behalf of their cultivators, and refer persons seeking machines of this class to anyone who has ever used them.

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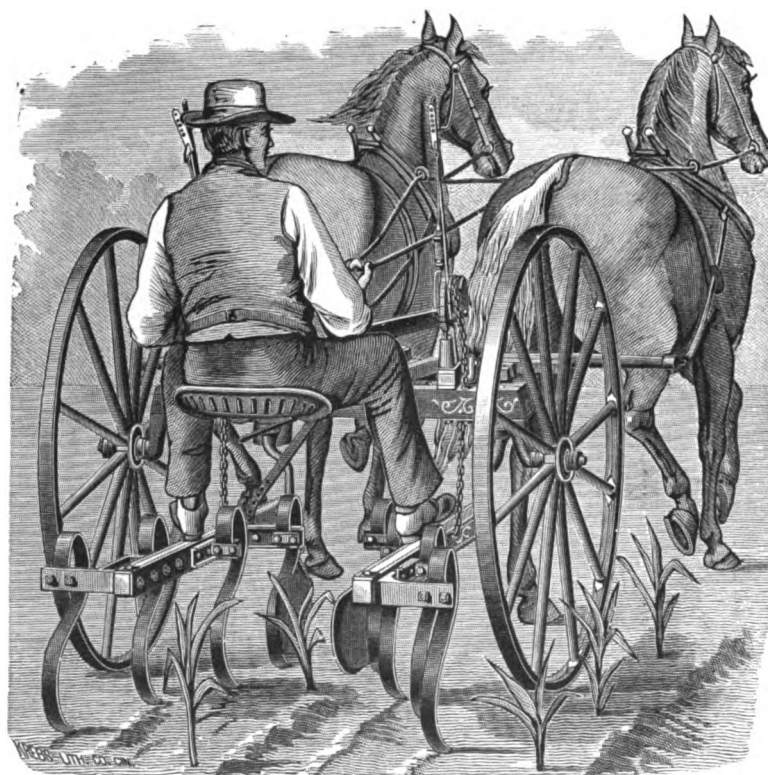
Broadcast Seeder and Sulky Harrow.

THE Kalamazoo spring-tooth broadcast seeder and sulky harrow is one of the improved farming tools manufactured by D. C. & H. C. Reed & Co. The manufacturers, in presenting this machine to the notice of farmers, invite attention to the following features, which are said to distinguish it: Rapidity and effectiveness in pulverizing and fitting hard fall plowing; success in making a perfect seed bed in tough new sod, without tearing it up; splendid work in corn stubble and adaptability to fit prairie and loose soils without the aid of a plow or cultivator; effective work in roots, stumps and stones, the oscillation of the harrow and the springing of the teeth keeping it free from breakages where other implements could not be used at all;

the construction of the frame in two independent sections, which permits it to adapt itself to side-hills, uneven ground, and dead furrows—working equally as well in these trying places as on level ground—a feature said to be possessed by no other spring-tooth seeder on the market; the ease with which it can be converted into an effective cultivator by the removal of two teeth; the convenience with which it can be controlled by the operator, whether walking or riding, the lever being within easy reach and permitting its rapid



NO. 3 SPRING-TOOTH HARROW.



"NEW REED" SPRING-TOOTH CORN AND FALLOW CULTIVATOR.

adjustment. The feed used is the "Champion"—first-class force feed, that has been thoroughly tested and that has received the indorsement of all who have used it. The United States court has enjoined the manufacture by other parties of spring-tooth harrows which in any way imitate and infringe the "Kalamazoo," and purchasers of harrows are cautioned against such imitations.

Rastras con dientes de resorte, Cultivadoras y Sembradoras.

ADJUNTAMOS ilustraciones de las rastras, cultivadoras y sembradoras perfeccionadas modelo "Kalamazoo" fabricadas por los señores D. C. y H. C. Reed y Cia, maquinaria agrícola que se ha granjeado un envidiable renombre por la eficacia que tiene y por la buena mano de obra que la distingue. La grada con dientes de resorte corta el suelo desde el fondo, lo desmenuza y agita, echando las yerbas sobre la superficie de la tierra donde pronto mueren. La cultivadora de maíz para un caballo es ajustable en su ancho y su profundidad y dicen que se adapta especialmente al uso de colonos en terrenos nuevos en estado más ó menos salvaje. Posee grandes ventajas para uso de los que se dediquen al cultivo de cosechas de raíces, lúpulos y plantas de semillero. Damos otra ilustración de una cultivadora de maíz y barbecho para dos caballos. Es de un cil manejo y la facilidad de cambiarla de cultivadora de maíz á otra de barbecho es particularidad valiosa que tiene. Otra máquina agrícola que fabrica la casa es la sembradora á vuelo perfeccionada con dientes de resorte modelo "Kalamazoo" y rastra con asiento, combinadas, que se distingue por la rapidez y eficacia con que desmenuza el suelo y luego despues prepara el suelo duro. Está construida en dos secciones independientes que se adaptan á las desigualdades de la superficie del suelo; funciona y se maneja con la mayor facilidad, alimentando la siembra con gran regularidad.

Harken mit Federzähnen.

WIR illustriren hiermit die vervollkommenen "Kalamazoo"

Harken, Cultivatoren und Säemaschinen der Herren D. C. & H. C. Reed & Co. Dieselben haben sich einen beneidenswerthen Ruf von Tüchtigkeit und dauerhaftem Ban erworben. Die Harke mit Federzähnen, die wir im Holzschnitte darstellen, durchschneidet die Erde vom Boden aufwärts, Verwandelt sie in Pulver und rüttelt sie dergestalt, dass das Unkraut auf die Oberfläche des Bodens geworfen wird, wo dasselbe rasch hinsiegt. Der Maiscultivator für ein Pferd kann in der Breite und Tiefe nach Wunsche gestellt werden. Derselbe soll als

besonders nützlich Niederlassen auf neuem Lande sich erweisen, wo bis so weit wenig Arbeit geschah. Derselbe besitzt auch besondere Vortheile für Pflanzungen von Wurzelgewächsen, Hopfen und Brachfelder. Ferner illustriren wir einen Mais- und Brach-cultivator. Derselbe lässt sich leicht handhaben und kann rasch von einem Mais—in einen Brach-

cultivator umgewandelt werden, was jedenfalls eine grosse Errungenschaft ist. Die vervollkommnete breit "Kalamazoo" Federzähnen ausäende Säemaschine und Harke mit Sitz zeichnet sich durch die Schnelligkeit aus, mit der sie Dienste verrichtet, so wie durch die vollkommene Zerkleinerung des Bodens, den sie bewirkt, dabei zu gleicher Zeit den harten Boden vorbereitend. Dieselbe ist in zwei von einander unabhängige Theile getheilt, die ihre Verwendung auf unebenem Boden ermöglicht. Man kann sie mit der grössten Leichtigkeit handhaben und lässt sie die Saat mit grosser Regelmässigkeit in die Furchen laufen.

Bei wettbewerungen mit Preisen, so wohl hier zu Lande, wie in der Fremde, hat die Reedsche Maschinerie häufig den Sieg davon getragen.

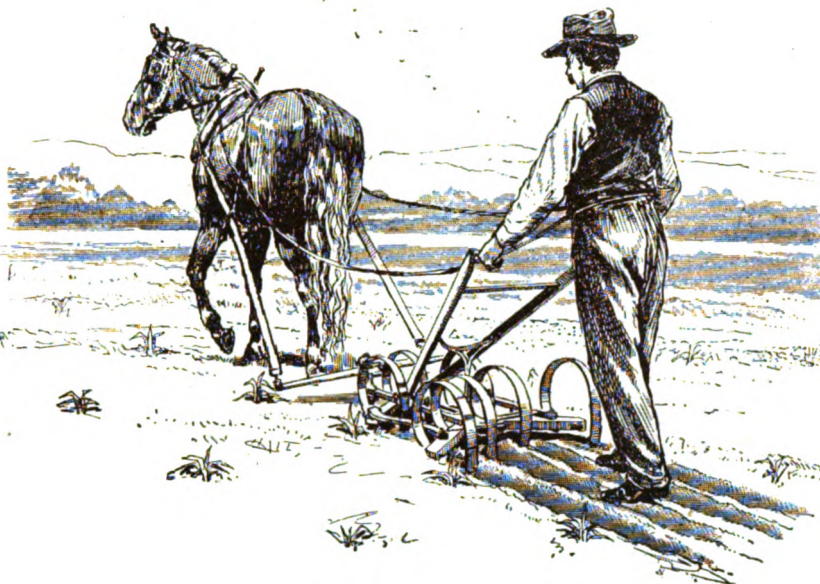
Double Horizontal Turbine.

A DOUBLE horizontal turbine water-wheel lately constructed is intended to couple directly to the machine to be driven, all transmitting machinery being entirely done away with. This style of wheel

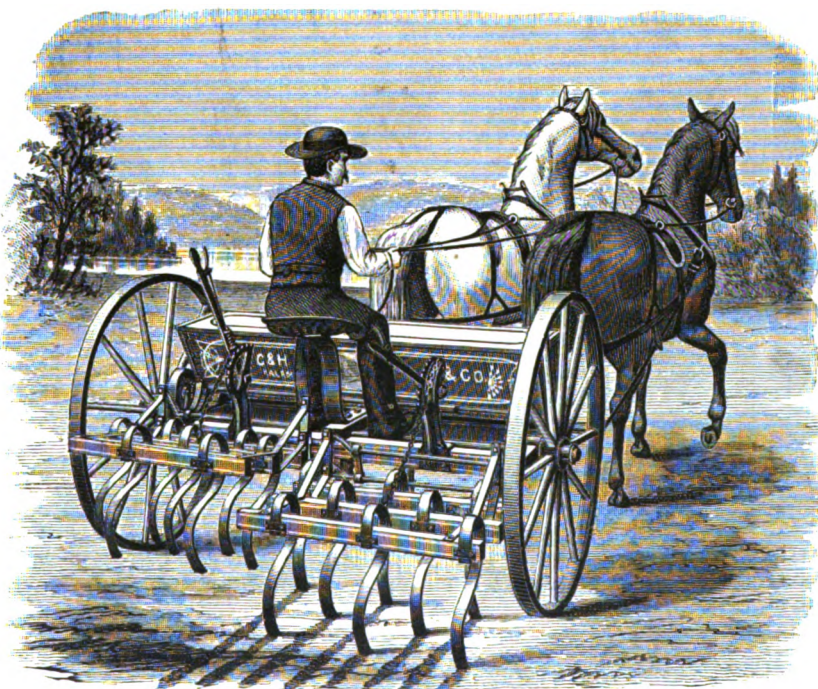
is guaranteed to yield a useful effect of 80 per cent. at all stages of the water used, from one-half up to the full quantity, which it is said can easily be done because the wheel really gives 85 per cent. on all heads over 20 feet. The wheel is intended particularly for high heads and heavy pressures, and is said to be pre-eminently adapted for such situations. The gates, one for each wheel, are simply flat plates sliding over annular openings, and with the wheels proper or runners are the only parts out of sight under water. There is not a single bolt or screw-thread that cannot be seen or reached even when the wheels are in operation. When the double horizontal wheel is used for saw-mills or other work that

requires frequent manipulation of the gate, a valve-gate on the principle of the old-fashioned stove-pipe damper is put in the draft tube, and, being perfectly balanced, may be opened and closed by a cord led to any desired point.

For electric lighting and other places where a governor may be required a very simple device for regulating the motion can be attached to the valve-gate above described. In fact, simplicity is the ruling feature in this wheel and its attachments.



ONE-HORSE SPRING-TOOTH CULTIVATOR.



KALAMAZOO IMPROVED SPRING-TOOTH BROADCAST SEEDER AND SULKY HARROW.

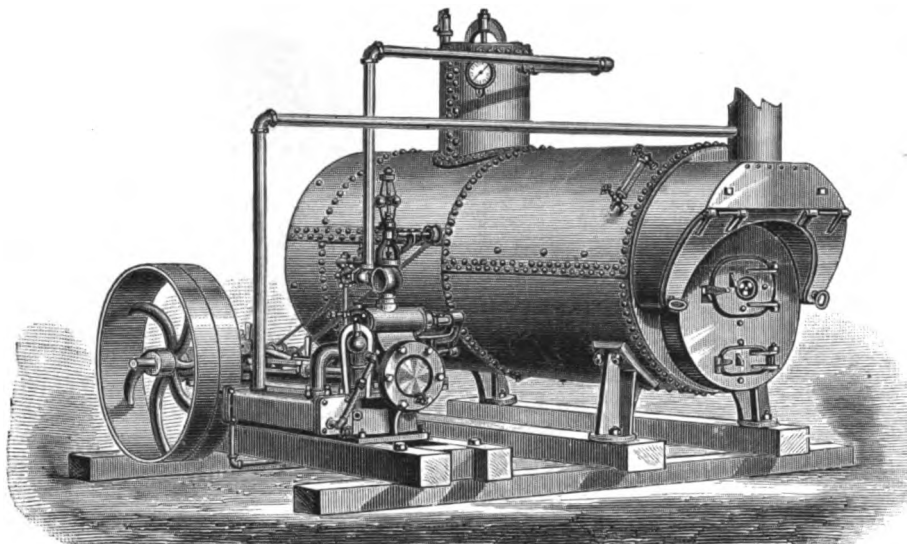
"Champion" Stationary Engine and Boiler.

THE "Champion" stationary engine made by D. June & Co. is built to order only in sizes from twenty to forty horse-power. The builders spare no effort to combine strength and lightness in the production of engines of this type, and have, they believe, succeeded in producing the most substantial and powerful engine of its weight in use. The bed-plate is heavy and strong, and is made to bolt firmly to a foundation of timber or stone. The engine is provided with a steel shaft, with heavy gun-metal bearings at all points of wear. It has a heavy fly-wheel pulley of the required face, and is furnished with a reliable governor; it is independent of and can be used with any kind of boiler, vertical or horizontal, fire-box tubular, or with two flues set in brick arch, as the purchaser may desire. The return tubular fire-box boiler shown is of safe and durable construction. The sectional cut illustrates the interior of this boiler. There is no flat surface which must be stay-bolted to prevent explosion or which will fill with sediment to burn out if not kept clean; there are no crown sheet, crown bars or stays to fill up and burn out the crown sheet. The fire box is a clean cylinder made of the best fire-box iron, three-eighths of an inch thick and of 60,000 pounds tensile strength, the cylindrical form keeping it clean and preventing obstruction. The boiler is tested to 200 pounds hydraulic pressure, and is guaranteed to stand twice the pressure of the ordinary fire-box boiler.

Combination Coil Boiler.

THIS boiler consists of a vertical shell containing a high-water jacketed fire-box and a single flue. Within the fire-box is arranged a series of coils, each coil having its own connection to the boiler, independent of the other. The lower end of each coil is carried down by the edge of the grate below the water jacket and attached to a pipe-casting on the outside of the water space. The upper end of each coil is carried up the smoke flue and attached to a pipe-casting on the outside of the boiler over the steam space. A baffle-plate is fastened to the inner coil. The most complete combustion and large heating surface is obtained in the fire-box. Durability of the coils is secured by the connection of their top and bottom ends to the steam and water space respectively. By this arrangement as fast as steam is generated in the coils it must rise and be delivered into the steam space. Water will then flow into the coils from the water jacket at the bottom, keeping them constantly full, avoiding all danger from overheating, and the coils are as durable as the rest of the boiler. Outside fastening for the ends of the coils allows of good, secure attachments, with no danger of burning them out, and they are always accessible. In case a coil

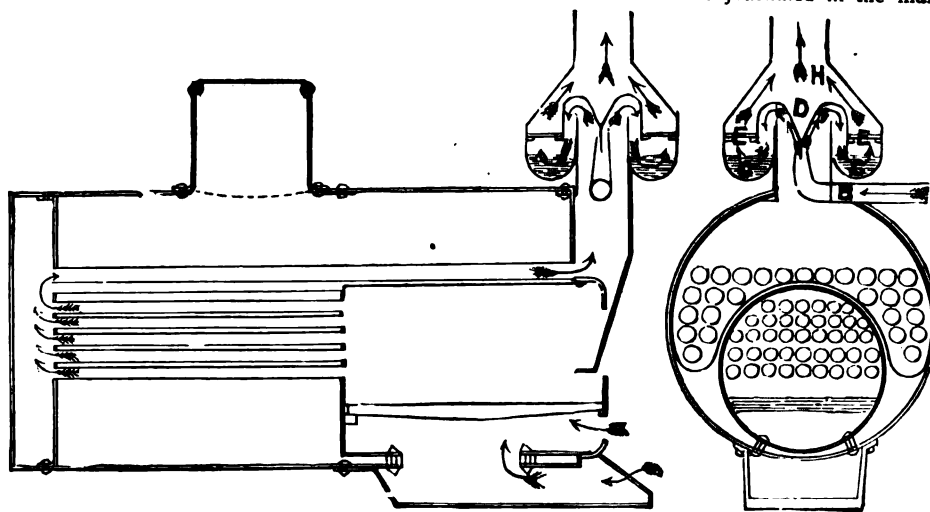
should split, blank flanges can be inserted at each end, cutting it off from the rest of the boiler. The boiler can then be used as before until repairs are convenient. The same margin of water level is obtained as in any form of boiler, dispensing with the constant watchfulness required of other forms of coil boilers. There is a large steam space and no danger of priming, as an unbroken surface of water covers the crown sheet, and any water carried over in the coils is thrown down to the surface of the water. The heating surface is all fire surface, giving it three times the efficiency of small tubes through which the gases pass. Steam can be raised very quickly, and when the working pressure is reached sufficient volume of water can be carried in the boiler to keep a constant steam pressure. It thus avoids the troublesome variation of pressure, so common in other coil boilers. The weight of this boiler is comparatively light, and is low down, and occupies the minimum of space. It is said to combine all of the good features of the coil and vertical boilers, without the objections of either.



RETURN TUBULAR FIRE-BOX BOILER AND CENTRE-CRANK ENGINE.

Cotton Cultivator.

A NEW cotton cultivating machine is designed to so operate that the cotton may be cultivated and chopped to stands. In construction the axles are journaled in the main frame, and have end-crank spindles for the wheels. These axles also have cranks connected by a pitman having connection with a lever. This lever is supported on the main frame and arranged to engage a rack by which it and the axles it operates may be secured in any suitable adjustment in order to secure the wheels at any desired height. To the front of the main frame are secured hoes for barring off the cotton, and hoes are arranged at the



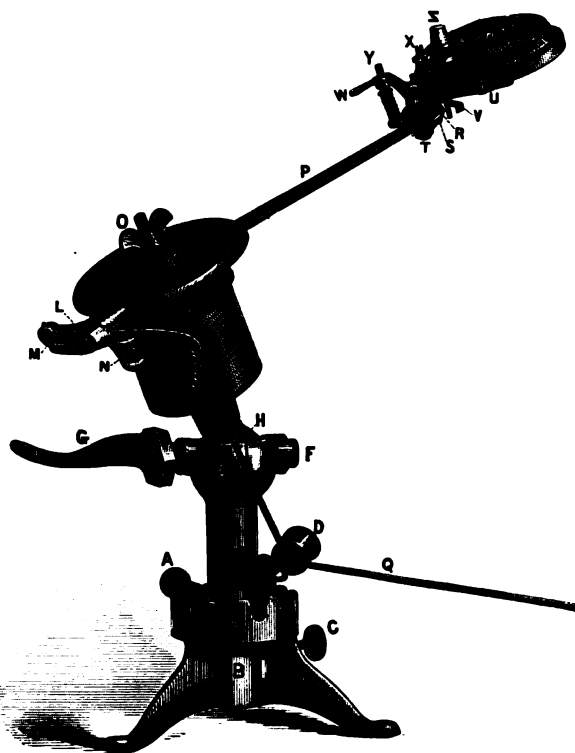
RETURN TUBULAR FIRE-BOX BOILER—SECTIONAL VIEW.

rear of the machine to side up, these operations being well understood by those skilled in the art. The standards of the rear hoes are braced by bars extended forward from a cross-rod. A shaft is journaled transversely of the main frame, and has a drive-wheel arranged to engage the ground when the main frame is lowered. To the shaft is also secured a gear formed on the side of the drive-wheel. The chopper is revolved by the drive-wheel by means of gearing. Handles are provided by which to guide the machine. In operation the front hoes will bar off and the rear ones side up the cotton, while the chopping mechanism intermediate the hoes will cut the cotton into stands. By the lever mechanism the wheels may be set to raise the frame, and with it the cultivating and chopping mechanism, when turning or moving the machine from point to point, and the frame may be lowered to cause the mechanism to operate in the ground to any desired depth.

Hardware.

Trap-Shooting Apparatus.

TRAP-SHOOTING is a favorite amusement with sportsmen who are fond of handling the gun; but in the exercise of this sport so many living beings are killed that the sport has become regarded by many as a pretext for the wanton destruction of life and for the infliction of pain and suffering. But in shooting at birds from a trap there are frequently many annoyances to the sportsman. The birds furnished may not afford him a fair opportunity for the display of skill or give him any advantage in the way of practice and experience. Sometimes birds are difficult to obtain, and the destruction of game birds and the scarcity of pigeons have frequently compelled good shooters to lay aside their guns, despairing of finding time and opportunity to indulge themselves in the sport of shooting at rapidly-moving objects. Glass balls were introduced to take the place of birds and to make amends for the deficiencies in game; but these have been superseded by a much more efficient substitute, which simulates the flight of a bird and affords the marksman opportunity for the display of skill and for practice. The "clay bird," two models of which are here-with illustrated, is the desirable substitute referred to, and it has become very popular as a flying target. This "bird" is a clay bowl or saucer about five inches in diameter, one and a half inches deep and about one-sixteenth of an inch thick, and so modelled that it can be projected from a trap like that illustrated or it can be thrown, and when sent into the air it imitates the flight of a bird very naturally. The "bird" known as the No. 2 and illustrated as the "Old Model," is recommended for parties preferring "hard" shooting; the "New Model," or No. 1, is adapted to easier shooting. These "birds" are made of clay, burned very brittle, and are easily broken by shot. The trap shown is one of two styles designed for setting the "clay birds" in motion. By their means the targets can be projected at different angles or sent on a level, skimming over the ground. The following description of the trap, with reference to the letters on the cut, will enable the reader to understand its features. A is the lever used to change the angles; b, tripod stand; C, hand-screw for obtaining horizontal angular adjustments; D, pulley for rope; E and H, ball and socket joint for obtaining vertical angular adjustments; F and G, bolt and wrench by which ball and socket angular are adjusted; I, rack with four holes, by which four degrees of velocity are obtained; L, trigger frame and cap; M, trigger; N, trigger spring; O, top thumb-nut; P, arm; Q, rope; R, eccentric—releases the bird; S, screw to set eccentric; T, pivot of arm extension; U, plate on which bird rests; V, plate spring to hold bird in position over arm when set; W, clamp—holds bird on plate; X, clamp screw and nut by which eccentric, S, opens clamp and releases the bird; Y, clamp spring and screw to regulate tension on bird; Z, rubber holder by which clamp gets a firm hold. The check and force spring are one and are enclosed.



THE NEW MODEL TRAP.



CLAY BIRD—OLD MODEL.



CLAY BIRD—NEW MODEL.

The American "clay birds" are made by the American Clay Bird Company; they are tongueless, and can be used in any kind of weather; water does not affect them and they have been known to float in water for weeks, and after that have proved as perfect as ever.

Oiseaux d'Argile et Balistes Brevetées.

NOUS donnons sur cette page l'illustration d'un oiseau d'argile ainsi que d'une baliste brevetée pour lancer en l'air dans n'importe quelle direction le soi-disant "oiseau" ou disque.

L'oiseau, ainsi que la baliste qui l'accompagne, ont été inventés dans le but de servir de cible aux chasseurs qui désireraient perfectionner leur tir, soit en faisant leurs exercices isolément, soit à l'occasion de concours de tireurs. Comme nous venons de l'indiquer, l'oiseau n'est autre chose qu'un disque d'argile, auquel il a été donné une forme particulière qui lui permet soit d'effleurer le sol lorsqu'on l'a lancé soit de prendre son vol dans n'importe quelle direction ou l'hauteur qu'on désirerait, au-dessus du tireur, selon la manière dont la baliste l'aura jeté, la vitesse se contrôlant d'une façon fort simple. Ces articles sont d'un bon marché remarquable, en même temps qu'ils s'adaptent parfaitement à l'usage des clubs de tir et, à vrai dire, de tous ceux qui aiment le tir. S'adresser aux fabricants, the American Clay Bird Company.

Thonvogel und Patent Wurfgeschoss.

WIR illustriren auf dieser Seite einen sogenannten "Thonvogel," so wie ferner das Geschoss, welches dazu dient, um den "Vogel," welcher nichts Weiteres ist, als eine Scheibe, in irgend eine Richtung durch die Luft zu schleudern.

Es wurde dieser "Vogel," so wie das ihn begleitende Geschoss, zu dem Zwecke erfunden, um Schützen, welche sich im Schiessen zu vervollkommen wünschen ein gutes Übungsmittel zur Hand zu stellen, und es ihnen ferner zu ermöglichen, durch Wettschiessen unter Freunden ihre Geschicklichkeit in der Handhabung der Jagdflinte zu erproben. Wie bereits angedeutet ist der Vogel eine Thonscheibe, der

man eine solche Gestalt giebt, dass sie leicht über den Boden dahin fliegt oder in irgend einer Richtung oder Höhe über dem Schützen in die Luft sich erhebt je nach der Art und Weise wie der Vogel aus dem Geschosse emporgeschossen werden möge, wobei die Geschwindigkeit des Fluges auf eine höchst einfache Weise bemessen werden kann. Während diese Artikel

sehr billig sind, entsprechen sie auf eine ausgezeichnete Weise den Zwecken von Schiessclubs oder irgend jemandes welcher dem Schiessen ergeben ist. Die Fabrikanten derselben sind die American Clay Bird Company.

Pájaros de Arcilla y Balista de Patente.

DAMOS en esta página ilustraciones de un "pájaro, de barro y asimismo de una balista de patente para lanzar "el pájaro" ó disco en cualquier direccion. Se ha ideado el pájaro, así como la balista que lo acompaña, para uso de los cazadores y aficionados que deseen ejercerse en perfeccionar su tiro ó emprender partidos y con-

tiendas pacíficas de destreza con el fusil de caza. Ya se comprenderá que se llama pájaro el disco de arcilla cuya forma hace que pase ligeramente sobre el suelo ó á corta distancia de él ó tome su vuelo á cualquier ángulo ó altitud sobre el tirador segun la manera de que se lance el proyectil desde la balista, regulándose la velocidad sin la menor dificultad. El todo es sumamente barato adaptándose admirablemente para uso de juntas de tiradores y demás aficionados en el ramo. Es fabricante de esos artículos la American Clay Bird Company.

Lawn Pump.

PERSPECTIVE and sectional views are given of Numan's patent lawn pump, manufactured by Elbel & Co. This pump is constructed with double cylinders, and will throw a continuous stream through either long or short sections of hose. The external or outer cylinder is the air chamber; the inside cylinder is the pump chamber. Bruising or denting the outside cylinder cannot interfere with the perfect working of this pump. There are no rubber or leather valves to crack or decay. Both valves are indestructible, therefore, and the pump can be used to pump hot water, oils and chemicals. All parts are detachable. The double brass screw cap at the top admits of the easy removal of the plunger. In fact, every part is put together with screw couplings. The hose is a good quality of rubber. The hose screw couplings, nozzle and sprayer are brass. The pump is easily and quickly taken apart and put together. The removal of dirt, or any obstruction can be done without trouble in a second or two. The patent adjustable stirrup is adjustable to any water vessel, and the knee brace, by which the pump is held in position, is so well adapted for the purpose that a child can hold the pump firmly while using it.

The uses to which this pump can be put are many and varied. It can be utilized for throwing crude oil, soap-suds and chemicals on trees and plants; for disinfecting barns, destroying insects or vermin, and for washing horses, wagons, carriages, &c.; for cleaning windows, pavements, porches, &c.; for flushing clogged-up sewers, sprinkling the lawn or street, and putting out fire, &c.; for sprinkling garden beds; for scrubbing floors, pumping liquids; for washing bottles; for pumping water out of trenches, thawing out frozen drain-pipes, &c.

New "Champion" Six-Lever Padlocks.

THE cuts illustrate the new "Champion" six-lever cast bronze, self-locking padlocks manufactured by the Miller Lock Company. The new style shown marks a notable improvement in the construction of a well-known and very secure padlock, adapting it to a range of uses much wider than before.

In this form an automatic plunger, actuated by a spring in a socket quite apart from the other parts of the lock, serves to throw open the shackle when unlocked and also to close the hasp opening and keep out all dirt.

The springs are of phosphor-bronze, not liable to weaken under the influence of any climate. As the name implies, this lock has six levers or tumblers, and is so constructed by elaborate machinery that no two

locks can be opened by the same key, except when the locks are made alike to order. This, it will be seen, is a very important difference between these locks and their competitors, for all owners are interested to possess the only keys that can open their locks. The "Champion" are the only American-made padlocks in popular reach in which the keys all differ, as above explained.

For this and for other important reasons not so readily explained in an article like this, they are believed to be the most secure padlocks obtainable, and are so recognized by the governments of the United States, Canada, &c., as well as by many in the trade.

The Union News Company, of New York, after seven years' trial, and having in use more than four thousand of the "Champion" padlocks, says: "We have tried all kinds that are of any note, and find these to be the best and most secure. They cannot be picked nor opened without breaking. As a railroad lock they have no equal. At the low prices ruling in the United States this year such goods should find a place with dealers in every quarter of the globe."

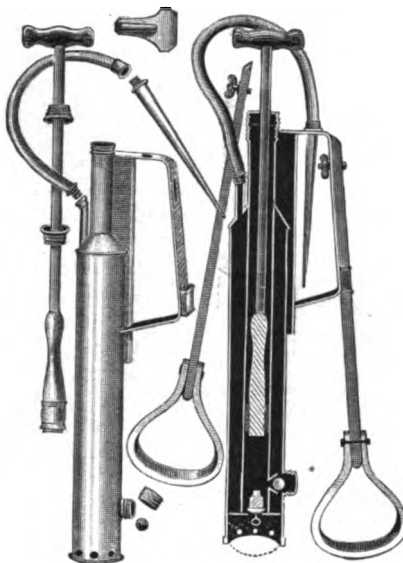
Drawer Handle.

AN improved handle for drawers and other purposes is designed to economize space and obviate the tearing of clothes and injury to persons in running against the handles. It may be made highly ornamental and adapted to the finest articles of furniture, and in construction so simple that it is not liable to get out of order. It is constructed as follows: A flanged metal casing is snugly fitted and secured by mortising into the drawer, or other article on which the handle is to be attached, having the flanges flush with the face of the article. Within

the casing is pivoted or journaled the handle which, when the lower portion is thrown outward, furnishes a ready means for operating the drawer, and when not in use hangs flush with the front face. The flange on the upper edge of the handle forms a stop, which, coming in contact with the rear of the casing, determines the extent to which the handle may be thrown outward. The handle may be slotted and provided with flanges adapted to receive cards or labels with the name of the article contained

in the particular drawer, or any other desired inscription. Within the same casing, and below the handle, is pivoted or journaled a lever provided with arms, extending upwardly under the handle, whereby the handle is thrown out and ready to be grasped by simply pressing on the lower edge of the lever.

A PATENT clasp, intended to supply a substitute for nails and hooks for hanging up various kitchen utensils—such as pans, pails, wash-boilers, saucepans, stone pots, skillets, &c., can be fastened to the wall or to a frame with nails or screws, and makes a useful, convenient and ornamental article. The clasp is preferably made of flat plate metal, and has one or more holes to screw or otherwise secure it to a support. It is so bent as to make a cavity, which allows the edge of an article to first descend and then ascend, furnishing a firm grip, while the weight of the article will be thrown so as to insure the necessary friction. This clasp is capable of receiving and holding articles which cannot be hung on a nail.



NUMAN'S PATENT LAWN PUMP.



NEW CHAMPION SIX-LEVER PADLOCKS.



Metals and Mining.

Tin from Dakota.

THE first tin ore ever taken out in the Western Hemisphere has been shipped from the Black Hills, Dakota, on its way to New York. The importance of this fact will be better understood when it is stated that the United States now import \$30,000,000 worth of tin annually. The ore is from the mines of a company doing business at Harney's Peak, in the Black Hills, and which, owing to the amount of money actually subscribed, and the fact that it has taken possession of the great tin deposits covering an area of over 7,000 square miles, must be looked upon as the greatest mining company extant. Superintendent Bailey, of the Harney's Peak Company, says:

"The tin belt is situated around the base of Harney's Peak, the highest point in the hills, with an altitude of 8,443 feet. This mountain is the granite core of the hills. The granite is eighteen miles long, north and south, by thirteen wide east and west. Around the line of contact with that and the slates, in a circle of from two to four miles wide, the tin belt exists. The outcrops of tin are simply enormous, varying in width from 10 to 200 feet, and appear above the surface from 500 to 3,000 feet. In some places they stand from five to thirty feet above the surface, so hard as to resist the elements. The geological condition is the same as that of Cornwall, England, and other tin districts."

An Electrical Sluice-Box Amalgamator.

FOLLOWING is a description of certain new attachments to an ordinary sluice-box or flume for saving fine gold, amalgam, &c.: In any ordinary sluice-box or flume, at any suitable distance apart, say six feet or so, more or less, according to the fall of the box, riffles of upper rounded configuration are arranged across the bottom. Immediately below each of these riffles the bottom of the sluice-box is cut out for a distance of from one to about three feet in length, and a quicksilver-tight box projecting from and below the bottom of the sluice, and open above, is substituted for the cut-out portion. These boxes are of a reverse inclination to that of the sluice-box, varying in degree as the character of the ore changes, but in every instance being deeper at what may be termed their upper end, relatively to the sluice-box. Above each of these "false boxes," at the bottom of the riffles, and resting on cleats secured to the sides of the sluice, is a double perforated plate, composed of duplicate plates of iron or copper, insulated from each other. This double plate is set inclining upward in the downward direction of the sluice, leaving a mouth opening at its raised end between the sluice and false box. The perforations in the double plate are preferably of increasing size below, to give a ready clearance and prevent clogging by clay, &c.

In the bottom of each false box is an insulated amalgamated copper plate. In these boxes the quicksilver is placed, and their upper and lower plates are insulated as described, when it is desired to use an electrical current to expedite and improve the work, the two plates being connected with the different parts of a battery. The riffles—of hollow plates or solid—have a rounded shape, and will give a force of fall that it is claimed will effectually secure the amalgamation of free gold by bringing it in contact with the quicksilver.

The boxes in the bottom of the sluice or flume are fixed, and the upper perforated plate and lower inclined one, with the quicksilver resting on the latter, will secure the necessary amalgamation, and give a proper distribution of the sand over the surface of the amalgamating chambers, so as to save fine flour gold and amalgam. The inclined plate in the bottom of these false boxes may be used for concentrating the ores, and the mouths and position or arrangement of the fixed boxes with their inclined bottoms will serve to provide for the apparatus clearing itself of dirt falling through into it. The succession of amalgamating chambers and plates is intended to be specially serviceable where the stream is heavy, as any precious metal that failed to go through the first perforated plate would go through the plates next succeeding.

When electricity is applied to promote the amalgamation, the double plate, by being made compound, as described, and is connected, as regards its lower insulated plate, directly or indirectly with the positive pole of the battery and the bottom amalgamated plate with the negative pole, the electric current will be confined to the stream passing through the fixed boxes and not be scattered or have its force impaired

by passing through the water in the entire box. When the stream is passing through the fixed boxes and the lower plate is charged with negative electricity and the lower of the upper double plates with positive electricity, the precious metals are attracted to the negative, the bottom plate and the base, &c., are attracted by the lower upper one of the plates, and the water falling through completes the circuit. Only certain of the boxes may be charged, or the whole of them, as may be desired.

Manganese in Virginia.

A CORRESPONDENT of the Staunton *Virginian*, writing from South River, Va., says: I took a ride over a portion of our district, which I have mentioned recently as abounding in rich deposits of manganese. The lands visited and closely inspected were those of George A. and P. O. Coyner. I fully expected before making the visit to find a great showing of this precious ore, but I am free to say that what I saw not only measured up to my highest expectations, but so far beyond them that I can only say that I was astounded. I hand you a sample of the ore, which I am told bears 90 per cent. of manganese. And now, to give you an idea of the extent of the deposit, I will describe briefly the location and extent, &c., of this tract. Along the east side of Back Creek, and between the edge of the creek and South Mountain, is a succession of hills that sometimes rise to the dignity of mountains. At a point nearly opposite the S. V. Station, Lyndhurst, is to be found the first indication of the deposit, for just on the bank of the creek named the ochre, which is exposed to a considerable extent, is mixed with the ore. Taking a northeasterly direction and crossing the first of the hills, lumps of manganese can be found along the whole route for a mile and a half. But it is just after passing nearly half-way down the east side of this hill that the indications become so strong that it is impossible to put the foot down without stepping upon stones from the size of your fist to that of a barrel, which are made up of more than two-thirds of the kind of mineral I have handed you with this. From that point to the foot, and for 200 to 250 yards in width, the whole surface is covered with the above-described stones and boulders, and I am confident that on that part over which I walked not less than several thousand tons of pure manganese would be picked up off the surface. A small creek divides the first hill from the next one, which rises abruptly from the very edge of the creek, making it but a step from the foot of one hill to that of the other. The bed of this little brook abounds in samples of high-grade ore, and the same may be said of the formation on the second hill that I have said of the other. Thus for a distance of not less than two miles there is every good indication that one could wish that the deposit is inexhaustible. After the qualitative analysis of the samples I have given you it is the intention of the owners to have a quantitative examination made. I shall visit Kennedy, and from what I have seen and heard I feel justified in reasserting that within five years, at farthest, South River will be the great steel manufacturing centre of America.

Tetradymite.

SOME weeks ago the *Inter-Mountain* published a short article concerning a strange mineral found in the Bell mine, near Sheridan. Since that time the mineral has been examined by Professor Baird, of the Smithsonian Institute, who says that it is the somewhat rare species tetradymite, the telluride of bismuth, containing from 35 to 50 per cent. tellurium, the remainder being bismuth and occasionally a small amount of sulphur of itself. The professor also states that the samples sent him are similar to the tetradymite found in the Highland district of Montana at the Uncle Sam lode. Samples to the extent of seventy-five or one hundred pounds will be sent to the institute during the summer, as developments may justify, to further determine the presence of any other tellurides. He says it may be possible that some of the very rich tellurides, such as occurred in Colorado, may be discovered. In assaying this tellurism to ascertain the amount of gold it contained, he says an enormous excess of lead is required in order to get accurate results. As before stated, the mine producing this ore is the Bell mine, and is located on the range of mountains between the north fork of Mill Creek and Willow Creek, and is owned and worked by Bush & Meyers. Late developments are very encouraging. All practical miners and mining men are admitted to all parts of the works. All others are excluded.

House Furnishing, &c.

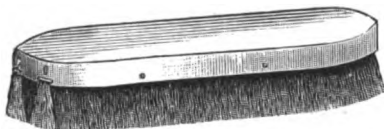
Patent Brushes.

THE brushes manufactured by the American Patent Brush Company are made of various fibres, among which are Mexican and Italian rice root, tampico and bast fibre, but the method of securing the material in the block is a patented specialty. The advantages of these brushes are: the large amount of material forming the face of the brush; the security of the fastening of the material to the brush-back, and the rapidity of making, by which the expense of manual labor is reduced to a very small portion of the price of the brushes. The backs are solid wood, and no glue, nails or screws are used in the brush. The method of making is the grooving of the block from end to end. The fibres are doubled into these grooves with a large-sized wire, which is turned over and driven into the block at each end, where a staple adds strength and helps to control the stock. These goods are not an experiment in the markets of the United States, but have been introduced and accepted from the Atlantic to the Pacific as good, substantial, honest goods, practical and economical as compared with brushes made in the old way. By its machinery and organization the American Patent Brush Company is prepared to fill orders for its specialties with reasonable promptness, no matter how large they may be, a single machine turning out from 700 to 1,000 completed brushes every day. The illustrations show some of the styles of brushes made by this company.

There are about fifty different sizes of these brushes, in varied styles, but all of one grade as regards their quality, no second quality being produced.

Escobillas de Patente.

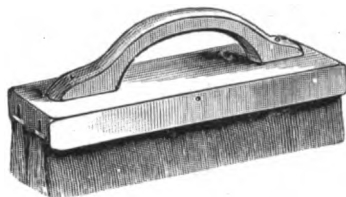
LA compañía fabril, The American Patent Brush Company, se dedica á la fabricacion de gran variedad de brozas de patente que se hallan ilustradas en esta página. Tienen respaldos sólidos, no hay aplicacion de cola fuerte en su fabricacion, ni se usan clavos ó tornillos, y es precisamente esta construccion que les da la gran resistencia que tienen. Están hechas de millo de escoba, raiz de arrós, istle y corteza interior. Son propias para una infinidad de usos, tales como almohazar y limpiar caballos, restregar, enjabegar, &c. Tampoco faltan testimonios para probar lo excelente que son las escobillas de la casa.



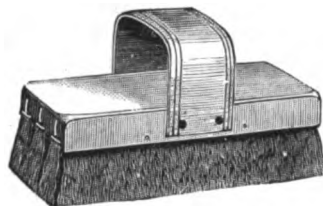
DOUBLE-POINTED SCRUBBING-BRUSH.

Lemon Holder and Squeezer.

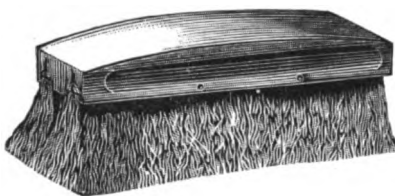
THIS contrivance is admirably adapted for table use. It is designed to express the juice from fractional parts of a lemon (when served with oysters) without soiling the gloves or fingers. The jaws or cup portion of the squeezer are composed of two series of rings, attached to handles, so as to intermesh with each other and form, when closed, a cup to receive and compress the lemon. The handles are provided with finger-loops, pivoted together by a pin, so that they may be opened and closed, like the handles of a pair of pincers. The bottom ring is closed with a plate, which has an aperture for the escape of the juice.



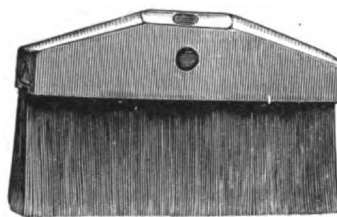
STOVE-BRUSH.



HORSE-BRUSH.



MANE AND TAIL BRUSH.



WHITEWASH-BRUSH.

The Karn Organ.
REPUTATION must be acquired and sustained by works, and, having acquired a good reputation, it may be assumed that the Karn organ, manufactured by D. W. Karn & Co., has a substantial foundation for the repute in which it is held. A warranty accompanies each organ of this make and is expressed in the following terms: "This certifies that organ, style —, No. —, bearing our name and manufactured by us, is in every respect a first-class instrument; that it is made of the best material and in the most workmanlike manner, and that it will, with proper care from exposure to

excessive heat or dampness, stand the effects of any climate. And we hereby warrant it, for the term of seven years from date, against failure in any part, except such as may be caused by accident, misuse or neglect."

Three styles of the Karn organ are illustrated on the next page. The "La Belle" is a solid black-walnut case with figured walnut panels, carved and with or without gilding as desired. It is made in eight styles, five octaves, from 7 stops and grand organ with three sets of reeds to 13 stops and grand organ, with five sets of reeds—two of 28 notes each and three of 33 notes each—the stops being diapason, dulciana, viola, flute, celeste, echo, piano, diapason forte, viola forte, vox humana, treble and bass coupler and sub-bass set of reeds.

The "Imperial" is a six-octave organ which is made in six styles, with from 11 stops with four sets of reeds to 17 stops and grand organ with eight sets of reeds—three of 31 notes each, four of 42 notes each and one of 13 notes—besides a bourdon set of reeds of 31 notes and a piccolo set of 42 notes.

Another illustration shows the style of a "two-manual" organ with pedal bass and blow lever. This style can be had with a pipe top which is known as the orchestral style and suitable for a church or chapel. This is said to be the finest organ for professors.

In all, the firm mentioned makes fifty styles of organs, among them being a "traveling trunk" organ which is specially adapted for traveling troupes, missionaries and other persons whose business or duty calls them from place to place. This style can be unpacked ready for

use in thirty seconds and it only weighs, ready for shipping, one hundred and seventy-five pounds. Other styles are known as the "New Favorite," "Peerless," "Monarch," "Ebonized Piano Case," "Chapel," &c., the latter specially designed for chapels, lodge-rooms, schools, &c.

El Órgano Patente de Karn.

ILUSTRAMOS tres de los órganos de gabinete manufacturados por los Señores D. W. Karn y Cia. El órgano modelo "La Belle" mide seis pies de alto, dos pies de profundidad y cuatro pies dos pulgadas de ancho. Se hacen ocho estilos diferentes de ese órgano, siendo el cajon de nogal negro sólido, los tableros de nogal moteado, esculpido y dorado con tres hasta cinco juegos de cañas, de siete á trece registros, con juegos de cañas para prima, contrabajo y registro grave de pedal, cinco octavas. El "Imperial" es órgano de seis octavas y de él se hacen seis estilos diferentes con cuatro hasta diez juegos de cañas.

El órgano "Two Manual" es modelo que se destina particular-

mente al uso de los profesores y preceptores de música á demás de los modelos y estilos que acabamos de enumerar la casa fabrica otros para uso de las iglesias, capillas y orquestas; tambien ha ideado la casa el órgano de viaje que cabe en un "baul" y sirve para uso de los aficionados ó artistas mientras estén viajando. Se saca del baul y monta listo para uso en treinta segundos.

Die Karn Orgel.

WIR verweisen auf die beigefügten Holzschnitte von drei Kabinetorgeln wie sie die Herren D. W. Karn & Co., fabriziren. Die "La Belle" misst sechs Fuss in der Höhe, ist zwei Fuss tief und Vier Fuss zwei Zoll breit. Es werden von dieser Orgel acht verschiedene Arten hergestellt, wobei der Kasten von massivem schwarzem Wallnussholz ist, das Getäfel von scheckigem Wallnussholz, ausgeschnitzt und vergoldet, mit von drei bis fünf Reihen von Rohrflöten, sieben bis dreizehn Zügen mit hochtönigem und Bassanhängsel, und Contrebass Reihe von Flöten; fünf Octaven. Die "Imperial" Orgel hat sechs Octaven und werden sechs Arten davon aufgefertigt mit von vier bis zehn Reihen von Rohrflöten. Die "Two Manual" Orgel ist eine Art, welche ganz besonders für den Gebrauch von Professoren und Musiklehrern eingerichtet worden ist. Ausser genannten fabrizirt die Firma eine Anzahl sonstiger Sorten von Orgeln zum Kirchen und Kapellgebrauch, sowie Orchesterorgeln; ferner eine "Reisekofferorgel," deren sich Reisende, Künstler, &c., bedienen Können. Diese letztere kann in dreissig Secunden fertig zum Gebrauch aufgesetzt werden.

Pine-Leaf Carpets or Matting.

A NEW kind of carpeting or matting and some other coarse goods is made from pine leaves. The Charleston (S. C.) *News and Courier* gives the following description of the process of this new and

"The carpet mill, which is situated some distance from the fibre mill, is a large two-story structure, which is, however, as yet in its infancy, as the company has but recently commenced the weaving of carpets and matting. The appliances and machinery are about the same as those in use in establishments of like nature, the machinery, of course, being adapted to the spinning and weaving of the new fibre. This is brought over from the fibre mill after being dried, and is first put through a carder and cleaner, all the impurities being removed, and after being carded emerges in the shape of slivers about three inches in width. The fibre now assumes the first appearance of yarn. These slivers are caught in cars and then go through a drawing frame where four slivers are converted into one. A second drawing frame converts two of these into one, the sliver growing smaller and more condensed all the time. Next it is taken to the roving frame, whence it emerges in the shape of coarse yarn and is wound upon spools. It next goes to the spinning frame and finally to the twister, where two, three or four strands are twisted into one. It is then ready for the loom. To make colored carpets the yarn is either dyed or bleached, the yarn being wound into hanks for the purpose.

"At present, the company is running only one loom, which was made for experiments. These have proved so satisfactory, however, that orders have already been given for thirty additional looms, while a contract has been made with a well-known New York house to handle all the products of the mills. The carpets are made up in rolls and in various patterns. The natural color of the pine-straw yarn is a rich dark brown, which when bleached becomes a creamy yellow. Stripes of blue, red, green and yellow are woven into the patterns. The matting is made to imitate the finer grades of cocoa so perfectly that, were it not for the aromatic odor, which is one of the best qualities of the pine carpet,



"LA BELLE" ORGAN.



"IMPERIAL" ORGAN.



TWO-MANUAL ORGAN.

curious manufacture as carried on at Cronly, which is a village close to that city. It should be said that the fibre mill referred to prepares the pine leaves for use as a substitute for jute, cocoa or flax:

an expert would find it difficult to tell one from the other." This matting will be very available in tropical countries, and for the furnishing of country houses which are used as summer homes.

"Lullaby" Cradle.

AN illustration is given of the "Lullaby" cradle, which is made by the Keystone Manufacturing Company, and is offered to buyers as perfect in every respect.

This cradle is entirely new in principle and design. It is the result of very careful study, with a view to the production of a cradle for children which should combine safety, comfort, convenience, beauty, economy and durability, and this the manufacturer claims to have accomplished.

As shown by the cut, the body is suspended from two springs, which are attached to a frame. The frame can be adjusted to any position, and being provided with wheels it can be easily moved about from place to place. For shipment, or when not in use, it is folded into a very small compass. The springs are made of the best of steel, and will not break under any weight. The motion derived from these springs is both delightful and harmless, and in this respect it is a wonderful improvement over all kinds of rocking or swinging cradles. Parents will at once appreciate its merits, and after having once used it will not be willing to return to the old cradle. Buy one. It will add greatly to the comfort of both parent and child. When baby is awake it amuses; when restless or tired it soothes. When once set in motion, it will swing long enough to lull a child to sleep.



"LULLABY" CRADLE.

Cuna Modelo "Lullaby."

ESTAMPAMOS adjunto un grabado que ilustra la cuna de patente conocida bajo la denominación modelo "Lullaby" que sale del taller de la compañía fabril The Keystone Manufacturing Company. Se han ideado para ella tanto principio como diseño nuevos al par que une la seguridad, comodidad, economía y puración á un exterior grato, prendas que la recomiendan á los compradores. El cuerpo de la cuna queda suspendido por medio de dos resortes asegurados al armazon ajustable en cualquier posición y que se puede mover de un lugar á otro. El grabado da buena idea del exterior de esa cuna, &c.

"Novelty" Shade-Roller.

A VALUABLE feature is presented in the "Novelty" shade-roller, of which an illustration is given. This roller is self-acting and is adjustable to fit windows of any width, without cutting, being made capable of extension, so that the cap at either end is properly fitted and in place when the roller leaves the factory, thus rendering further adjustment of the caps unnecessary and saving time, patience and, perhaps, expletive when the work of putting up shades is made necessary. The roller runs true and smooth in the brackets and is noiseless; they have a spring stop and are of approved style.

The manufacturer is the Keystone Manufacturing Company.

Rulós Modelo "Novelty."

UNO de los grabados de esta página muestra el diseño de una nueva clase de correderas de cortina de ventana ajustable y automática. Tal cual sale de la fábrica es completo ese ruló; no hay necesidad de cortar nada, ni tampoco ajustarle la cabeza, puesto que esa corredera se halla construida de tal manera que á voluntad es expansiva ó contráctil, adaptándose á la ventana á que se destine. Es particularidad suya de suma utilidad. En países donde no hay artesanos y donde no es fácil hacer reparaciones, son sumamente valiosos. Fábrica esos rulós la compañía fabril The Keystone Manufacturing Company.

Coal-Sifter.

ONE of the latest economical appliances for housekeeping is an improved coal-sifter. The base of the sifter is provided with a downwardly extending flange, which is wired along its lower edge to give it greater strength and durability. This base is secured to the lower edge of the body by rivets passed through a horizontal flange integral with the body and extending along the rear end and the sides nearly to the front edge. The mouth of the sifter, in plan view, is rectangular in outline, in size is about 7x10 inches and is provided with a hinged lid or cover having a depressing flange along its front side and both ends. This lid has a finger-piece or knob by which to open and close it when necessary. The front wall of the mouth is vertical for a short distance from its top down, and this vertical portion is provided with a handle by which to carry the sifter. The remaining portion of the front wall inclines downwardly and forwardly and projects beyond the rectangular base, the projecting portion of the body being bottomless to permit the coal to escape into the coal-box, basket or other receptacle. An inclined screen is secured within the body of the sifter, and extends from the top at the rear wall of the body down to the front line of the base, which forms the front boundary of the bottomless portion.

The front wall has basket hooks on which to hang the sheet-metal coal basket or hod, to receive the sifted coal, the ashes falling into the box, barrel or other ash receptacle, upon which the sifter rests. Hanging down from near the top is a door or valve to prevent the dust from rising while the ashes are being poured in. This sifter can be made in different sizes of plain or galvanized iron and will last a lifetime. It supplies a

want that every housekeeper has experienced, being self-operating, free from dust, sifting easily, and saving of fuel.

Tea or Coffee Pot.

THE object of a new tea or coffee pot is to confine the sediment—such as tea-leaves or coffee-grounds—at the bottom of the vessel and prevent it from flowing with the liquid against and through the strainer at the top while being poured out. The body of the vessel is of the usual tapered form and has a handle and discharge-spout at the top edge. At the bottom is an opening around which an offset is placed, which tapers gradually outward from the bottom edge of the

pot to just beneath the lower edge of the spout, where it terminates in a flat end. The discharge-spout in this improvement is made as follows: The lid of the vessel is made to fit down below the top edge upon a shoulder, upon one edge



"NOVELTY" SHADE-ROLLER.

of which is secured a perforated plate, conforming in shape and adapted to fit close within the top portion of the spout just below its top edge. By putting the lid below the top surface of the vessel its easy displacement is prevented and the necessary guideway for the escaping fluid beyond the strainer is secured. In the old form of pot the sediment, grounds, &c., will escape from the vessel in the act of emptying it, whereas by the use of this improvement the sediment, &c., will settle and be retained at the bottom of the vessel within the offset. When desired to discharge the entire contents from the vessel, it is only necessary to remove the lid and turn the vessel half over, so that the sediment, &c., will not settle in the offset, when it may be emptied out of the vessel. By leaving the opening between the discharge-spout and body of the vessel entirely free and placing the strainer in the lid, instead of making it a permanent fixture with the body of the vessel, the cleaning of the interior is rendered easy, and the strainer and lid may be kept perfectly free and clean. The offset for the grounds, &c., being below the spout, the vessel occupies no greater space.

Fancy Goods, Stationery & Paper

The "Facile" Ink and Pencil Eraser.

A NEW pocket ink and pencil eraser, called the "Facile," is illustrated on this page. It consists of a hexagon piece of wood, into one end of which is inserted a rubber ink-eraser and into the other a rubber pencil-eraser.

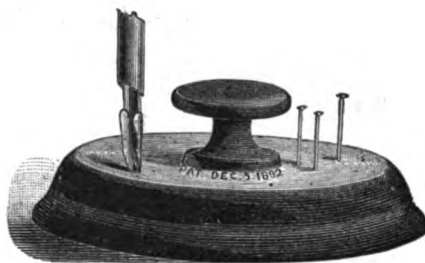
It is a convenient little article, which does its work thoroughly, is sold low and comes carded, one dozen on a card, displayed so as to present an attractive appearance. Its shape prevents it from rolling off the desk and renders it easy to handle.



"FACILE" INK AND PENCIL ERASER.

"Electric" Pen-Cleaner and Paper-Weight.

THE cut herewith illustrates a little device known as the "Electric pen-cleaner and paper-weight." The cleaning device consists solely of a soft roll of telegraph tape mounted in the metal base. The pen when not in use can be thrust into the tape and will be retained there until again needed, coming out clean and dry. The device is also available as a pin-cushion, and the metal base is heavy enough to serve as a paper-weight.



"ELECTRIC" PEN CLEANER.

When ready for use it will have shrunk from three-quarters of an inch to five-sixteenths of an inch in thickness.

But the thickness of the sheets varies according to the use for which they are intended. The effect of the chemical bath on the paper is marvelous. Two minutes after being immersed in the liquid, and immediately after removing it from the water in which it has been soaked for an instant, a thin piece of paper three inches wide will sustain considerable weight, although dripping wet; while five thicknesses of ordinary newspaper will support 100 pounds. A ton of paper will suffice to make a ton of leatheroid. Paper is instantly converted into leatheroid, but it requires from two or three days to months to prepare it for use. It is strictly a chemical product, tough like rawhide, elastic like whalebone and very much like horn in texture; in fact, it is a material wholly unlike anything heretofore known. It contains no oils, paints or gums of any kind. All its qualities are inherent, derived from the structure and character of its fibres, the same as in the case of steel or other metals. The remarkable elements of strength and adhesion which leatheroid possesses are obtained wholly at the moment when the paper is submerged in the chemical bath.

Leatheroid is a remarkable production that will eventually be used the world over, for it is superior in many respects to wood, tin or iron. It is lighter in weight than either, is elastic as thin steel, and cannot be broken or worn out. These properties at once commend it to the casual observer as a material that will certainly

play a most important part in the manufacture of an infinite variety of useful articles. While wet leatheroid is shaped upon molds in the form desired, and will hold that form perpetually when dry. A dry sheet resembles very much in appearance a side of sole leather, and it is almost impossible to cut it with a sharp knife. Leatheroid was first introduced to the world for making roving cans, cars and boxes of leatheroid to take the place of the tin ones heretofore in use in cotton and woolen mills. They are now used in almost every factory in New England. Leatheroid was found to be a most excellent covering for pulleys, for which purpose machinists pronounced it superior to any other material. It also makes better washers than iron, as a degree of flexibility inclines the nut to adhere rather than to become loose, as is the case with iron washers. Leatheroid also makes one of the best of insulators, and is being extensively used on the railroads. It

is a perfect substitute for whalebone in corsets. It took an active part in the amusement world during the skating craze, for last year two concerns were making 100 sets of rollers per day. Among the many uses to which it has already been adapted is the manufacture of trunks, valises and sample-cases of all shapes and sizes.

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Improved Copy-Book.

A N improvement in copy-books consists in the combination with a book-cover of a blotter hinged to the margin of one part of the cover between the folds which form a pocket, the blotter being adapted to fold into the book so as to absorb the ink from both sides of every sheet. A pen or pencil holder is attached between the leaves of the cover which form the pocket. The copy-book is considered a "high advance" in educational appliances. The copy has beneath it squares and lines which enable the scholar to preserve the proportions of the letters, and there are also skeleton letters, in which the scholar can trace the copy and thus become habituated to the formation of the letters.

Writing-Case and Lap Tablet.

ONE of the latest novelties in writing-cases is known as the Acme tablet writing-case and ladies' lap tablet. It consists of a central desk, holding an "American blotter tablet," wax tapers, seal, &c., while at the head of the desk is a French inkstand and a wax taper, as well as space for pens, pencils, &c. On each side of the desk is a folder. That on the right has a calendar on its lower side, while its upper side forms a desk with blotter. That on the left has a number of pockets for paper, envelopes, &c. This case is made in fancy leathers, and is furnished in three sizes.



COMBINED WRITING-CASE AND LAP TABLET.

Shipping Tag.

A NEW shipping tag, which for strength and reliability will, it is believed, be difficult to beat, has been put on the market. The tag is of the usual size and of the same material as others, but instead of the customary inserted eyelet a small strip of the same material, about one and a half inches long by three-fourths of an inch wide, is thrown over the end of the tag, pasted firmly down, thus making three thicknesses of the material where the perforation is made. Besides all this a small piece of wire, about one-half inch long, is cut and inserted between the perforated hole and end of the tag and between the tag proper and the overlapping piece, as described above. This adds wonderful strength to the tag, as can be easily seen, and as the cutting of the strip and wire, together with the pasting and perforating, is done on a patented machine, specially built for the purpose, the cost of production is reduced to a minimum.

Leatheroid and its Uses.

THE manufacture of leatheroid was begun at Wheeling, Va., then transferred to Pittsburg, then to Philadelphia, and finally to Kennebunk, Me.

In this manufacture ordinary white paper, as it comes from the mills, is passed through a chemical bath and then wound on a cylinder until it has attained 110 thicknesses. It is then cut off in sheets eight feet long, four feet wide and three-quarters of an inch thick. The sheet is then plunged into a bath of salt and water, where it is soaked for nearly three months. It is then taken out dried, pressed and rolled.

American Industries.

The Manufacture of Organs and Pianos.

D. W. KARN & CO. AND THE WOODSTOCK ORGAN AND PIANO WORKS.

ONE of the prominent industrial establishments of America is located at Woodstock, in the province of Ontario, Canada, and here conducted a business which has grown and is still growing, thanks to the energy of its head and founder, D. W. Karn.

Mr. Karn is a descendant of early German settlers in the State of Pennsylvania, and was born in the vicinity of the town where his business is located, his grandparents having removed thither while the surrounding country was yet new and unbroken. In his youth he assisted in clearing the land of its forest, and, subsequently, tilled the soil among the stumps. He never received a musical education, but was always enthusiastic in the delightful exercise. When very young he taught classes in singing in the winter evenings, and employed his leisure time in making musical instruments, particularly violins. The first forty dollars he ever owned at once he invested in a melodeon. Being of a mechanical turn of mind he early came to the conclusion that farming would not be his life-work. In reaching out beyond he became interested in the manufacture of organs, and connected himself with one J. M. Miller, now of Dansville, Ill., who, then, in 1864, was making an average of one organ per week, by hand, in a small two-story frame building on the front street near the market.

Three years after this period Mr. Miller retired from the firm, and Mr. Karn began to enlarge the business. In a small brick building in the rear of the premises he erected a four horse-power engine and added some machinery of a primitive style; yet it was an advance on the all-hand process, and the result was a rapidly increasing business.

Several years ago Mr. Karn purchased a three-story brick building on the main street, near the centre of the town, and adapted it to his requirements, making additions in the rear, in which he placed larger power and more perfect machinery. Very soon its full capacity was required for the increasing trade. But on the very threshold of prosperity a fire swept through the factory, destroying the main building and the stock, and greatly damaging the machinery and rear workshops. Unfortunately there was no insurance on stock and machinery, and only \$2,000 on the building. His loss was very great, yet his courage never failed, and in six weeks from the day of the fire the work of manufacturing was fully resumed, and in a short time thereafter a very fine music sale-room was fitted up on the ground floor. From that time forward the progress has been steady and unceasing. Two years after the fire the size and capacity of the factory were doubled, and in 1883 another addition was made, equal in size to all that then existed. New power, new and improved machinery, steam heating and every modern convenience, were added, so that now it is second to none for the purposes required, the whole premises giving a capacity of one hundred organs per week. The building is of white brick, with a fronting on Dundas street of 110 feet and 100 feet in depth, part three and part four stories above the basement, which is also made available.

The "Karn Organ" has been awarded the highest honors, among which are: A diploma at the Industrial Fair, Toronto, 1880; a diploma at the Dominion Exhibition in the same year; a diploma at the Provincial Exhibition, Hamilton, the same year; a diploma at the South-eastern Counties Fair, St. Thomas, the same year; silver medal at the In-

dustrial Fair, Toronto, 1881; a diploma at St. Thomas, 1881; received the only medal awarded organs, also diploma, at the Industrial Fair, Toronto, 1882; three diplomas at the Dominion Exhibitions, Montreal, 1882; silver medals and first prize at St. John, N. B., 1883. Many improvements, not known in other establishments, have been introduced into these instruments, which are all warranted for seven years, and of which the firm is now making about fifty styles.

The firm extended its factory last year by the purchase of an adjoining brick building, three stories high, with a frontage of 152 feet. This building is devoted to the manufacture of pianos.

The Manufacture of Staples.

NEW HAVEN STAPLE WORKS.

FEW people consider to what an extent the staple—a comparatively insignificant thing when viewed by itself—enters into use. It is by no means an unimportant article of production. This will be readily admitted by anyone who pauses to think of the numbers of staples that must necessarily be used even in the course of twenty-four

hours. The manufacture of staples is not limited to a single concern; but one of the representative manufacturers in this line of production is S. S. Bushnell, proprietor of the New Haven Staple Works, whose specialty is the manufacture of a staple that is used in connection with hooks, hasps, rings, &c., by all manufacturers of wrought-iron goods in the United States. There is naturally a constant demand for these articles, but the simple qualities demanded of them might not be supposed to demand the construction of an extensive establishment devoted mainly to their production. Mr. Bushnell, however, recognized that there was at all times an immense quantity of iron staples thrown on the market, of very

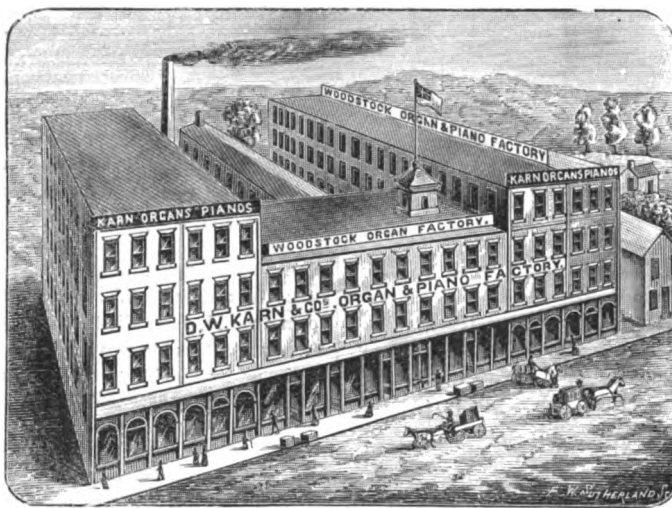
inferior quality, and that by giving the trade an opportunity to purchase a reliable line of goods, a large and prosperous business might be established. The result of a pursuance of this policy is that the New Haven Staple Works are known throughout the country, everything emanating therefrom being recognized as of standard quality, and characterized by regularity of finish, strength and other features of efficiency desirable in goods of their class.

The New Haven Staple Works were established in 1871, and are located at No. 20 Artisan street, New Haven, Conn., U. S. A. The works cover a ground space of 50 by 125 feet, and keep a force of fifty hands, with three machines, constantly employed in turning out staples. The goods are made from the best and toughest rod iron known, and are finished in a superior manner. They are low-priced for their kind, but are not sold as low as the ordinary fence staple, which is made from scrap wire and is not to be classed with the product of these works. The New Haven staple is not designed for wire fencing.

The machinery used in these works has been devised specially for the purpose, and is patented, and its results are, as stated, the production of staples which, for strength, durability and smoothness of finish, are said to be unsurpassed by the product of any other manufactory in the world. After fifteen years of consumption, in this and other countries, the manufacturer has yet to receive a complaint that any of his goods are defective.

This is a very convincing proof of the good character of the goods, particularly when it is noted that these works turn out about 100,000 gross, or 14,400,000, staples annually.

The New Haven Staple Works also manufacture a full line of wrought-iron goods, such as meat hooks, bent or straight hasps, hitching and trap-door rings, &c.



D. W. KARN & CO.'S ORGAN AND PIANO FACTORY, WOODSTOCK, ONT.

The American Mail & Export Journal.

Publication Office: 126 and 128 Duane St., New York, U. S. A.
Cable Address, Catehow, New York.

NEW YORK, JULY, 1886.

THE new steamship *Alliança*, of the United States and Brazilian Mail Steamship Line, has just been successfully launched at Chester, Pa. This vessel is of 3,600 tons burden, with a bilge keel, and has been constructed to take the place of the *Reliance*, which was wrecked not long ago. A special train conveyed a number of guests who had been invited to witness the ceremonies, which were conducted under the management of the officers of the company and which were notable in that they bore evidence to the progress of commercial good feeling and national amity between the leading countries of Northern and Southern America.

H. K. THURBER, president of the United States and Brazilian Mail Steamship Company, has devoted much time and patience to the task of furthering this important enterprise of international intercourse and to perfecting direct steam communication between Brazil and the United States, and to his indefatigable efforts a large share of the success which this enterprise has attained is due. He has been ably seconded by Captain Lachlan, the manager of the line, who has just returned from a visit of inspection and rearrangement of the company's offices and the perfection of other details designed to improve the efficiency of the service. Among those attendant upon the launch of the steamer were H. K. Thurber and Captain Lachlan, Captain de Saldanha da Gama, commanding the Brazilian cruiser *Almirante Barroso*, with Prince Leopold, grandson of the Emperor of Brazil, and twenty other officers belonging to the cruiser; H. W. Cannon, vice-president of the National Bank of the Republic; Howard Lockwood, president of the Lockwood Publishing Company, William J. Quinlan, Jr., cashier of the Chemical Bank; Philip Heidelbach, of Heidelbach, Ickelheimer & Co., bankers; G. Foster Howell, of the *New York Marine Journal*, and a number of others, including ladies. Prince Leopold broke the bottle of wine upon the bow of the ship and Miss Valentine pronounced the name in the form usual upon such occasions. The auspices were harmonious, and we hope may prove favorable in maintaining the prestige and success which the company has gained.

SINCE the accomplishment of direct and regular service between this country and Brazil by the intervention of the United States and Brazilian Mail Steamship Line, changes in commercial conditions have been effected, not the least noteworthy of these being the reduction in freights and the lessened cost of transportation, a change to which English steamers running to Brazil have been obliged to defer and meet by a corresponding reduction of charges. When we consider the great desirability of extending our commerce with Brazil we cannot be chary of our praise for the energy and determination which have wrought such advantages as the distinctively American line referred to has been and will be able to confer; but at the same time we must express our regret at the blindness or small-minded economy which deters our government from extending that aid and encouragement to which the enterprise thus exhibited is entitled. We believe in substantial aid for all steamship lines which are honestly managed and efficiently conducted, and which promise to widen the field and relieve the difficulties attendant upon the extension of our commerce in markets which have scarcely been touched. The United States and Brazilian Mail Steamship Company is now carrying the United States mail without pay and will not accept less than a proper

compensation for this service. We understand that it is willing to take twenty-five cents per mile, which is about half the rate that the government is now paying to transatlantic companies for carrying the European mails. When we consider the relation which an enlarged foreign demand for American goods bears to all of our producing and industrial interests we are surprised that any legislation or official action should interpose to obstruct or withhold the means by which our trade can be so largely broadened and our prosperity advanced. We hope to see a more generous disposition prevail. The Brazilian people seem to be specially friendly to this line and evince a desire to increase their friendly and commercial intercourse with us. We ought to and must do our part in return.

THE discovery of manganese ore in Virginia is said to promise the extinction of our imports of spiegel iron. We are continually impressed with the extraordinary discoveries of metals in this country, which seem to occur opportunely for our industrial advantage. When Columbus sought Cathay and discovered America, his most extravagant hopes could scarcely have anticipated the limits which the mineral productions of this country have developed.

REPORTS of a pending new extradition treaty between the United States and Great Britain seem to be well substantiated. It is time that some new arrangement should be entered into and that criminals who, under the existing treaty, have secured immunity by escaping from one jurisdiction to the other should no longer find refuge by so doing. Canada has become notorious as the abiding place of defaulters and law-breakers whose offenses do not come within the strict definitions of the present treaty, and it would be of as much advantage to the Dominion as satisfaction to the United States to deprive such criminals of the facilities for escape which they have enjoyed. On the other hand, it will save us a great deal of trouble and opprobrium if Great Britain can be enabled to lay her hands upon parties whose crimes should be expiated under the administration of her own laws.

FOR a number of years the manufactures of the Southern States have been growing at a rate which, while it does not promise the extinction or even reduction of the agricultural interest, indicates the subordination of the latter to the requirements of the former. Consumption of Southern agricultural products will become more a domestic feature. The advance made by the South is indicated by some figures which appear in our Washington letter in this issue. All this is the outcome of the civil war, which has compelled the development of a territory which years of slumberous peace under the old régime would never have accomplished.

DISAPPOINTMENT has attended the effort to enlarge trade between Mexico and the United States, and what our lawgivers have rejected is not likely to be contemned by other countries, notably Great Britain, which seems to be likely to "make the running" for the place which it has been hoped we should attain. The Mexican *Financier* remarks: "Whether the English will out-distance the Americans in the rivalry for the trade of this country is a question which cannot be decided offhand. Since the English Government re-established diplomatic relations with this country it has had the good sense to cultivate, through its agents, not only commercial, but friendly social relations with the Mexican people, a course which might well be imitated by other nations." Too much politics seem to be involved in all questions affecting our foreign trade, and probably we shall for some time longer have to lament the want of "good sense" which will lead to that imitation which the *Financier* suggests would be likely to prove so desirable.

TWO NOTABLE ANNIVERSARIES.

ON July 9, 1386, the Swiss peasant militia, to the number of 1,400, routed at the memorable battle of Sempach, Canton Lucerne, the 6,000 steel-clad knights in full armor whom Duke Leopold of Austria led against them in person in order to crush them and the newly-formed Swiss Confederacy. It was a sultry day and the knights had alighted and formed a formidable line glittering with lances, encircling slowly the peasant warriors, when Arnold de Winkelried, a giant, caught hold of a dozen knights' lances, exclaiming: "Let me carve you a road to liberty." He fell on the spot, pierced by lances, but his followers leaped into the gap and Switzerland was free. The celebration of this memorable event of five hundred years ago has been singled out by the Swiss for a great national revival. The battle of Sempach cemented at the time the union of four of the cantons, to which in the course of time twenty-one were added, with a present joint population of 2,846,102. The Swiss in their mountain fastnesses were never subdued by any of the nations surrounding them, in spite of frequent attempts to conquer the country, which even Napoleon I. was unable to reduce to his sway. Mankind and liberty at large have reason to rejoice at the maintenance of autonomy by this little republic, whose record is most respectable, not only politically, but commercially, inasmuch as in many branches of industry the Swiss have acquired an enviable reputation.

A little over a hundred years later than the battle of Sempach, on September 14, 1486, the famous Portuguese navigator, Bartolomeo Diaz, landed in Algoa Bay, Cape of Good Hope. His success encouraged the Portuguese to fit out another expedition in 1497, under Vasco de Gama, under whom Diaz commanded a caravel, and this expedition doubled the Cape, thus opening a new route between the Western world and the East Indies, the commercial importance of which was only diminished by the digging and successful navigation of the Suez Canal. In other words, the discoveries of Diaz and De Gama turned this great trade during nearly four centuries into a direction which revolutionized the world's traffic, which, instead of radiating from Central Europe, made Western Europe the distributive centre of an immense commerce. The Portuguese retained no hold on the country spreading north and east from the Cape; they were followed by the English and Dutch alternately, from 1591 to 1620, until in 1652 the latter took a firm foothold and settled it, until in 1806, during the Napoleonic wars the English captured the settlements, which were ceded to them in perpetuity by the general peace of 1814.

While Cape Colony rose rapidly in population and wealth under British sway, Natal, also discovered by the Portuguese, under Vasco de Gama, in 1497, was acquired by the former, but handed over to Great Britain in 1843, and on August 1, 1845, Natal was made an independent colony. The population of the Cape Colony was 720,984 in 1881, and that of Natal 418,731; in 1884 the latter had a population of 424,495, of whom 35,453 were whites, 27,276 coolies, and 361,766 natives.

The imports and exports of these colonies for 1884, exclusive of specie and diamonds, were as follows:

	Imports.	Exports.
Cape Colony.....	£5,249,000	£4,138,345
Natal.....	1,675,850	957,918

The tonnage entered in 1884 was:

Cape Colony.....	2,651,006
Natal.....	210,181

The value of diamonds exported from the Cape was:

1883.	1884.	1885.
£2,742,470	£2,807,329	£2,489,778

If, therefore, July 9 is an important date in Swiss history, September 14 is equally notable in the history of the flourishing British colonies in South Africa, and in both instances events have shown that laborious populations with a progressive spirit

are capable of founding prosperous commonwealths, as well on the borders of the African desert as in the snow-clad mountains of Central Europe.

RESOURCES OF TRINIDAD.

THE United States have begun to absorb the sugar and cocoa product of Trinidad at such a rate that more than usual interest attaches to an island whose export trade has become, so to say, monopolized by us and whither we ship increasing amounts of domestic goods. The sugar export statistics of Trinidad, dated Port of Spain, May 28, were as follows: Shipments to date, 10,944 hhds., 5,619 tierces, 133,685 bags and barrels (of which 10,771 hhds., 4,424 tierces, and 58,883 bags and barrels to United States), against 22,692 hhds., 5,860 tierces, 142,529 bags and barrels in 1885, and 16,821 hhds., 3,885 tierces, and 82,757 bags and barrels in 1884. One-third of the crop is yet to come in.

Trinidad also supplies the most of the cocoa that we consume and is imported direct by our chief chocolate manufacturers, so that it appears rarely in trade here in its crude condition. In fact it is contracted for ahead all the time, being comparatively cheap but answering all purposes fully.

Trinidad lies to the eastward of Venezuela and has an area of 1,754 square miles. It is separated from the continent of America by the Gulf of Paria, into which fall the northern mouths of the Orinoco.

The island was first discovered by Columbus on his third voyage, on July 31, 1496, and was taken possession of by him for the crown of Spain. No governor was, however, appointed by the king of Spain until 1532, and even then and for many years afterward the Spanish colonists had the greatest difficulty in maintaining a footing in the island. Trinidad made hardly any progress until 1783, when, in consequence of representations made to the court of Madrid by Rome de St. Laurent, a French planter of Grenada, who when on a visit to the island had been struck by its extraordinary fertility, a royal *cédula*, or proclamation, was issued by which extraordinary advantages were offered to foreigners of all nations to settle in Trinidad, the sole condition imposed, and that not very strictly insisted upon, being that they should profess the Roman Catholic religion. The consequence of this proclamation was a large influx of population, which was soon augmented by many French families which were driven from St. Domingo and elsewhere by the terrible events of the French Revolution, and to this cause is to be traced the great preponderance of the French element in a colony which never belonged to France. On February 12, 1797, Great Britain being then at war with Spain, a British expedition sailed from Martinique for the reduction of Trinidad. The fleet was under the command of Rear-Admiral Harvey, and consisted of eighteen vessels carrying 760 guns. The military force, numbering in all 6,750 rank and file, was led by Sir Ralph Abercrombie. The expedition resulted in the surrender of the island, and on February 18, 1797, the articles of capitulation were signed by Abercrombie, Harvey and Chacon, the Spanish governor. In 1802 Trinidad was ceded to the crown of Great Britain by the treaty of Amiens.

The climate of the island is healthy, the mean temperature in January being 76° F., and in September and October 79°; the average rainfall for the past nineteen years has been 66.39 inches.

The chief town and principal port of Trinidad is Port of Spain, population 31,858, situated on a gently-inclined plain near the northeast angle of the Gulf of Paria. The next town and port is San Fernando, population 6,335, about thirty miles south of Port of Spain. The harbor is the finest in the West Indies. A pitch lake, ninety acres in extent, is situated in the ward of La Brea, about thirty miles from Port of Spain. This is of considerable value on account of the asphaltum that it

furnishes for export, and yields a slight revenue to the island. Of the total area of Trinidad, which is estimated at about 1,123,000 acres, the alienated acreage, according to the last assessment, is: Cultivated in sugar-cane, 52,163 acres; cocoa and coffee, 25,188; ground provisions, 18,053, and cocoanuts, 2,767; total in crop, 98,171; pasture, 6,242; uncultivated, 190,997; total alienated, 295,410 acres.

The population of the island was ascertained by the census of 1881 to be 153,128. Communication between Port of Spain and San Fernando is maintained by means of the Gulf steamers, which ply daily, calling at intermediate points, and by the newly-opened railway. There are in operation fifty-two miles of railroad and seven of tramway. There is a general post-office at Port of Spain, a branch office at San Fernando, and twenty-seven out-offices throughout the island. No less than seventeen ocean steamers call regularly each month with the mails.

Immigration from India is conducted under government control. Under this head £41,526 were expended in 1883, besides the fixed establishment of the department, the cost of which is about £3,350. The number of Indian immigrants during each of the last three years was 2,629 in 1882, 1,960 in 1883 and 3,147 in 1884.

Primary schools were attended in 1884 by 9,086 pupils, 3,904 of whom were taught in government schools and 5,182 in assisted schools. Some 753 pupils, besides, attended private schools.

The railway debt of the island amounts to £581,080, and other indebtedness to £7,550. The revenue in 1884 was £476,058, against £291,469 in 1875, and the expenditure £471,189 against £282,294. The commerce of the island is shown by the following figures:

	1875.	1884.
Imports.....	£1,507,794	£3,081,870
Exports.....	1,625,082	2,769,727

The botanic garden at Trinidad is one of the finest and best kept in the British colonies, continually exchanging with those in other colonies within the tropics. All of the spices of the Indies are to be found there in full bearing. The garden is admirably watered and adjoins the governor's palace.

Trinidad is a place of refuge for revolutionists from Venezuela, where new expeditions may be planned and equipped against the republic. The island is, therefore, in bad odor, but this does not prevent it from doing a large trade with Venezuela generally and Ciudad Bolivar in particular.

In other respects the island is well administered, and has no doubt a great future before it as a producer of colonial staples. It is in every respect a desirable country to trade with, and we have every reason to congratulate ourselves on the foothold which our commerce has gained there.

EXPORTS TO CENTRAL AND SOUTHERN AMERICA.

COMPARISON of the merchandise values of exports from the United States (fiscal year 1885) and from the United Kingdom (calendar year 1884) to the West Indies, Mexico, Central and South America, presents some figures which American merchants and manufacturers may study. We will take a few principal articles of export to those countries, and let the figures speak for themselves. They are as under:

TO SPANISH WEST INDIES.			
Articles.	From U. S.	From U. K.	
Cotton goods.....	\$221,665	\$2,415,531	
Earthen and china ware.....	2,818	79,601	
Flax, hemp, &c., manufactures of.....	166,573	1,435,825	
Iron and steel and manufactures of.....	652,967	1,161,108	
Totals.....	\$1,044,023	\$5,142,065	
MEXICO.			
Cotton goods.....	\$699,790	\$2,269,448	
Flax, &c., manufactures of.....	26,000	461,072	
India-rubber, manufactures of.....	34,829	178,931	
Wool, manufactures of.....	35,415	647,527	
Totals.....	\$796,034	\$3,556,978	

CENTRAL AMERICAN STATES.		
Cotton goods.....	\$269,515	\$2,716,884
Flax, &c., manufactures of.....	73,369	474,260
Wearing apparel.....	.....	265,998
Wool, manufactures of.....	40,318	358,520
Totals.....	\$383,202	\$3,815,662
VENEZUELA.		
Cotton goods.....	\$315,343	\$2,003,850
Flax, &c., manufactures of.....	62,428	274,704
Wool, manufactures of.....	1,772	170,186
Totals.....	\$379,543	\$2,448,740
BRAZIL.		
Cotton.....	\$516,827	\$1,111,960
Earthen and china ware, &c.....	48,157	536,215
Flax, &c., manufactures of.....	37,174	1,312,998
Gunpowder, &c.....	7,157	542,805
India-rubber, manufactures of.....	7,637	126,383
Iron and steel and manufactures of.....	607,110	6,740,414
Lead and manufactures of.....	6,829	72,413
Leather and manufactures of.....	19,353	834,181
Lime and cement.....	1,021	181,141
Malt liquors.....	10,722	117,599
Paints and colors.....	1,711	131,103
Seeds.....	310	127,025
Wearing apparel.....	.....	323,569
Wool, manufactures of.....	1,063	1,741,282
Totals.....	\$1,265,071	\$26,919,088
URUGUAY.		
Cotton goods.....	\$150,300	\$3,196,157
Earthen and china ware.....	2,911	186,113
Flax, &c., manufactures of.....	31,196	258,401
Iron and steel and manufactures of.....	77,611	1,315,799
Leather and manufactures of.....	1,170	11,324
Paints and colors.....	367	57,065
Wearing apparel.....	.....	172,513
Wool, manufactures of.....	1,865	1,151,330
Totals.....	\$265,420	\$6,246,702
ARGENTINE REPUBLIC.		
Cars, railway.....	\$48,236	\$2,224,993
Cotton goods.....	410,914	5,575,105
Earthen and china ware, &c.....	28,225	374,657
Flax, &c., manufactures of.....	88,287	1,251,182
Iron and steel and manufactures of.....	845,418	10,722,540
Leather and manufactures of.....	4,883	243,257
Paints and colors.....	2,244	214,165
Paper and stationery.....	42,020	168,454
Wearing apparel.....	.....	437,260
Wool, manufactures of.....	685	2,852,050
Totals.....	\$1,471,812	\$24,063,663
CHILI.		
Cotton goods.....	\$613,129	\$3,317,483
Earthen and china ware.....	16,159	155,251
Flax, &c., manufactures of.....	35,208	378,667
India-rubber, manufactures of.....	8,200	56,310
Iron and steel and manufactures of.....	378,097	2,597,645
Paints and colors.....	738	99,330
Wearing apparel.....	.....	206,812
Wool, manufactures of.....	6,887	1,253,134
Totals.....	\$1,058,427	\$8,064,632
PERU.		
Cotton goods.....	\$114,777	\$2,131,459
Earthen and china ware.....	2,720	105,491
Flax, &c., manufactures of.....	27,548	182,757
Iron and steel and manufactures of.....	92,604	838,469
Wearing apparel.....	.....	64,549
Wool, manufactures of.....	3,204	876,846
Totals.....	\$240,853	\$4,199,571

Americans can draw from the foregoing abstract their own conclusions of what we ought to do in the way of trade with the countries south of us. We think that there is a good deal of trade taken by Great Britain which might come to us if it were properly sought and worked up. We have not taken into account the goods and quantities sold by France, Germany and other countries in the same quarter. It is time that we began to look more into this business.

Communications.

Washington.

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., June 28, 1886.

IN the opinion of those best qualified to judge the end of the first session of the Forty-ninth Congress is not far off. It is quite likely that the National Legislature will adjourn by the 15th or 20th of July next. The record is about made up and little has been done. The general appropriation bills will be passed and a few unimportant measures may become laws but none of the great and valuable questions will be disposed of; they will all go over to the short session next winter or remain for the intellects of the Fiftieth Congress.

At the coming elections the tariff issue will come squarely before the people and much will be learned as to the wishes of the voters throughout the land on this befogged question when the returns are all in. While one great national party is almost solid for protection, there is much difference of opinion in the ranks of the other with regard to the matter. If the Morrison bill reducing the tariff had passed the present House it would most assuredly have met its quietus by a negative in the Senate, so that the vote on its consideration recently obtained had but little interest for the country.

Mr. Morrison's bill in favor of free lumber, free fish, free wool and reducing the duty on cotton goods as well as woolen 20 to 33 per cent., has surely won no favor, judged by all the evidence in up to the present time, and it does seem that any attempt to fasten it upon the statute books as a law will be a useless task. In the minds of many able thinkers the revision of the present tariff is a very necessary piece of legislation for the welfare of the country, and able, astute public men who boldly say that such a measure is the wish of the majority of the citizens of the United States, are not wanting.

One thing is freely admitted with regard to the trade of the United States, and that is, that we keep too much at home and send too little abroad. Our manufacturers do not look far away; our productions are stored away in warehouses and workshops until demanded by domestic markets, while such countries as Great Britain, France and Germany are daily supplying with manufactures China, Australia, the states of South America and the West Indies. We now do a good business at home, and while the prohibitionist claims that this is fostered and kept healthy by a high tariff, the free-trader loudly asserts that a reduction of the tariff will not impair this trade, but would serve to broaden the field and extend commercial intercourse by sending the large surplus, at a handsome profit, to those who are in need of it. This question is too intricate and far-reaching to be discussed in the columns of a newspaper, but that it is very vital, affecting the daily bread and hard-earned dollar of every workingman in the United States, none will deny.

Notwithstanding the serious troubles between capital and labor, the year 1886, as foreshadowed by reports from agricultural and business centres, will make a good showing when the books are reckoned up at the end of the year. The present year will be prosperous if good prices are secured for the increased harvests, which are reported from all sections of the land, and as it is shown that much iron and cotton is being used in the great manufacturing districts it is not improbable, with a little better feeling between employer and employee, that the country will, on the 1st of January, 1887, exhibit a more prosperous condition than on the 1st of January, 1886.

Much satisfaction is to be derived from a consideration of the growth and progress of the Southern States. To many the South, considered in its industrial and commercial features, is almost a new country, and the figures which are presented below will be of interest to many readers. Since 1880 the railway system of the Southern States has been extended over 10,400 miles and the cost of this extension, with improvements and other investments, has amounted to nearly \$575,000,000. The number of cotton mills has increased from 180 to 353 and the use of improved machinery nearly 100 per cent. In 1880 the cotton-seed oil mills numbered only forty; now, there are 146, with a capital of nearly \$11,000,000. In 1880 there was manufactured in the South 397,301 tons of pig-iron, and in 1884, 657,599 tons, a gain

of 260,298 tons in four years; other mineral products have increased in about the same ratio. These statements are particularly true with regard to Georgia, Alabama and Virginia. In agricultural districts the corn crop increased from 334,000,000 bushels in 1879 to 499,000,000 in 1885, a gain of 165,000,000 bushels, and oats, tobacco, fruits, vegetables, grasses, &c., have doubled in production within the same period. In 1880 Southern live-stock was valued at \$439,900,000; at present its worth is \$599,000,000, a gain of \$150,000,000. In summing up it is found that the South produced in 1885 \$300,700,000 more in agricultural, manufacturing and mining values than in 1880. During 1885 the amount of capital invested in new manufacturing and mining interests and the enlargements of plants, &c., amounted to \$67,000,000.

With regard to legislation, Congress has done nothing of much importance since my last communication. On the 17th two important measures were up in the Senate and the House; in the former body the Frye bill "to promote the political progress and commercial prosperity of the American nations," and in the latter the Morrison tariff bill. The Senate passed the Frye resolution, but the House refused to consider the tariff question. The resolution of Mr. Frye, which has been mentioned in a former letter to THE MAIL, is one of much interest to the business men of the country, but, although it was passed by a unanimous vote of the Senate, it is not probable that it will get a fair chance in the lower House, owing to the crowded condition of the calendar. Even should it come before that body it is not safe to attempt a prediction as to its fate while there is so much timidity shown by members touching any question in any way affecting the trade affairs of the nation. The bill as it passed the Senate is in effect the same scheme which was advocated by Mr. Blaine in 1881. It provides for a convention of delegates from each of the South American republics, Mexico and Central America, Hayti, San Domingo and from the Empire of Brazil. These delegates, at the invitation of the President, are to assemble in Washington, to confer with representatives of the United States concerning all questions relating to the promotion and prosperity of the states of America. Such measures as the customs union, the creation of steamship lines, uniform system of weights and measures, common silver coin, and a method for the settlement of all disputes as may further the interests of peace and prosperity are to be considered. When the convention agrees upon certain articles they are to be submitted for the approval of the various home governments. The bill provides for an appropriation of \$100,000 to meet the expense of the convention. This measure is good, and it is to be hoped it will be passed by the House. If a plan can be agreed upon whereby this country can become strongly bound to the people of the South American continent by the friendly ties of commercial intercourse, it will do more toward strengthening the Monroe doctrine than a new navy with the biggest Krupp guns, and it will bring prosperity to the people of all of the countries concerned.

To-day the tariff question receives a fresh start, and the much-misunderstood topic comes to the front fashioned by the hand of the champion of Democratic protectionists—Mr. Randall. Those who are familiar with the Randall bill say that it is neither extraordinary nor very original, but that it is similar to the Morrison bill introduced early in the present session, and that the recommendations of Acting Secretary Fairchild, in his letter of June 14, to the Committee on Ways and Means, relating to silks, laces, &c., are also embraced within its provisions. The other portions of the measure, changing rates of duty on imported articles, is designed to build up needed industries and to give new life to those that are languishing. It is claimed to be in the interest of home labor and home trade, and also in many ways gives encouragement to the agriculturist by smoothing bad laws and that it reduces the cost of commodities to consumers, affording proper protection to legitimate importers throughout the United States by a just application of specific duties, thus obviating the chances for fraud and evasions; that it will simplify administration and diminish the cost of collections. The administration sections of the bill are, with a few changes, those of the Hewitt bill, as is also the seventh section, remitting the internal tax on alcohol used for manufacturing purposes. The bill is entitled, "A bill to reduce and equalize duties on imports, to reduce internal revenue taxes and to modify the laws in relation to the collection of the revenue." The changes in the rates are to go into effect on the first of January, 1887. The additions to the free list are

squared timber, boards and lumber in the rough, hubs for wheels, staves and wood of all kinds in the rough, jute butts and bristles. The bill repeals all forms of internal revenue taxation upon tobacco of every description, and all laws restricting its sale and disposition by farmers and producers after October 1 next. It also permits from and after the passage of the act the manufacture and sale of fruit brandies and wines free of internal revenue taxes. The bill proposes to amend existing tariff laws by striking out Section 2,499, Revised Statutes, and substituting a clause providing that articles not provided for shall pay the rate of duty levied on the enumerated article which it most resembles in material, quality, texture or use. In enumerated articles manufactured of two or more materials the duty shall be assessed at the highest rate chargeable if the article were composed wholly of the component material of chief value. The main features of the Hewitt bill are incorporated, including the clause removing the duty on alcohol used in the arts, the tobacco-wrapper clause and the administrative clauses. Scarcely anyone believes that the Randall bill will be taken up and passed. The programme is to offer this new tariff bill, pass such legislation as is necessary, and then rushing through the general appropriation bills, adjourn and go home.

Official information has been received at the State Department that the so-called international exhibition to be held at Adelaide, South Australia, is not sanctioned by the British Government. Like the "American" exhibition at London, it is purely a private speculation, without governmental approval or security. MONT.

Philadelphia.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA OFFICE AMERICAN MAIL AND EXPORT JOURNAL,
504 Walnut Street,
PHILADELPHIA, June 25, 1886.]

OUR custom-house records do not show that growth of export which all would be glad to see. In raw material, or rather in provisions, the shipments continue large. The petroleum trade is quite heavy; lard is going out in large quantities, and in two or three other directions, such as flour and grain, business has kept up to very satisfactory proportions, according to the statistics of that office. In the exportation, however, of manufactured products the showing is not so good. Besides, as heretofore stated, more goods go through New York than direct. There is at the same time a great deal of interest felt in the possibilities of a rapid development of the trade. The success which a few have met with is encouraging many others to follow. Some of our manufacturers have received offers from foreign agencies; some have been asked to contribute to the expenses of persons who are going abroad this fall to represent New York houses. Several firms have agreed to go into the arrangement and are sending samples of goods with the outgoing agents, and some are sending goods to agencies already established. Information as to what can be sold abroad is being sought by correspondence and otherwise. It may be quite interesting to state that a Philadelphia company has succeeded in establishing a trade for a new kind of shoe. The American Novelty Shoe Company, located at 707 Filbert street, is doing a good home business and is laying the foundations for a good foreign trade. A cablegram was received the other day from its London agent for a gross of shoes; this is small, but suggestive. These shoes are made of straw manilla braid. They are made in all shades and patterns, to match any textile drapery. The firm is at present sending consignments to England, Germany, France, Austria and other countries. The New York house is at 83 Reade street.

There is not very much to be said about business in general at this writing. We are just closing a six months' season, which has brought really more business than one would suppose from the vast amount of discouraging talk. The manufacturers and business men are too fond sometimes of belittling their trade. The labor strikes have been saddled with more than they are entitled to. Business turns out to have been larger than we suppose. It is a very common expression here made, "Our six months' business has been better than last year's." Quite a number have remarked to your correspondent that the labor agitations did no harm.

The locomotive builders are nearly as busy as ever, and there is an agent now abroad looking up some contracts. The Western Pennsylvania glass-houses have all shut down for the summer. One of their

salesmen here this week stated that the tumbler, beer-glass and prescription phial trade was steadily improving in foreign countries. The statistics would have been interesting, but the glass men seem inclined to hide everything they are doing in an export trade. The Rochester Tumbler Company is reputed to have a business all over the world. The plate-glass works at Tarentum, near Pittsburg, are meeting with great success in crowding out foreign plate-glass.

The Enterprise Manufacturing Company, Third and Dauphin streets, deserves special mention for its pioneer work in exporting. It has 535 hands busy at work at this time. Its export trade is increasing. As usual, it has brought out quite a number of novelties, all of which are meeting with welcome. A catalogue should be had, which will furnish fuller information than can be given in a letter. This company is driving business with energy, and is making its goods known and appreciated in Europe; these are cheap and durable and please the European trade better than similar articles made abroad.

The American Machine Company, Lehigh avenue and American street, is having a big run just now on the American ice-cream freezer, and has large orders ahead. Mrs. Potts' patent double-polishing sad-iron still has a big run. The "Perfection" scale, so much advertised, is doing well. The "Automatic" postal scale is also taking well.

The Textile Machinery Company is now full of orders, most of them for shafting work. The manufacturers of knitting machinery report a similar demand for machines from foreign markets. American knitting-machinery makers have perfected their machines, and feel safe against any combination at home or abroad, and against any other machines. The two machines made in this city are meeting with a large demand throughout the country and the manufacturers have as many orders on hand as they can conveniently fill at this time. Knitting machinery is wanted everywhere. The machines come cheap, are easily worked, do not readily get out of order, and are generally liked.

Our manufacturing interests are intending to be represented at the exposition in England next year. The headquarters have been removed from New York to this city and systematic effort will be made to rouse practical interest in the affair. It is a little too soon to say who will be represented or what they will have, but your correspondent has been promised the details when the time comes.

Our textile manufacturers have had a good deal of trouble with their hands during the past few weeks. The power-loom carpet weavers have just refused to accept the award of arbitrators appointed to settle the disputes. The carpet weavers have agreed to accept a slight reduction amounting to half a cent a yard. The hosiery weavers' scale of wages has not yet been completed. The clothing manufacturers are crowded with work, preparing stocks for the fall trade. The silk manufacturers are very busy, and it is now certain that several silk mills—that is, four or five—will be established in this State during the next twelve months. One will be built at Harrisburg. The reasons for this movement are said to be that land is cheap, labor and fuel are cheap, and that there is an abundant supply of labor to call upon, and therefore there is less danger of trade combination.

A dinner was recently given to the Hon. Elihu B. Washburn, at which about eighty of the most prominent citizens of Philadelphia were present, the object of which was to work up interest in the coming exposition. Encouraging addresses were made by quite a number. Mr. Washburn said that the proposed exhibition would give the American people an opportunity to show to England and all Europe what had been done here in the arts, sciences and manufactures. All inventors, manufacturers, agriculturists, artists, merchant and business men, he said, should aid in illustrating to the world the material progress, grandeur and power of the American people.

Philadelphians know what the Centennial Exposition did for them, and it is only natural that they should be anxious to secure some additional advantages by holding another little centennial in England. A great deal of interest is felt in this enterprise, and it would not be at all surprising to see the Philadelphia exhibit excel all others in number and in importance. We shall probably hold another novelties' exhibition here next fall, but the plans have not yet been perfected.

Your correspondent has talked with a great many large and small manufacturers and business men, and finds a surprising degree of confidence everywhere. There must be good grounds for it. The busi-

ness men have studied business requirements very closely during recent years. There is much less of haphazard management and production. By the help of an army of traveling agents, by the aid of newspapers, telegraph lines, railroads, &c., the great producing interests are able to keep themselves thoroughly posted as to consumptive requirements all over the world. Then, again, all industries are being more carefully organized, and there is less danger of getting ahead of the market.

P.

Foreign Notes.

Austria.

The Austrian beet fields are reported to look well. A sharp fall of prices has recently occurred by reason of the announced increase in the cultivation of beets in Germany, Russia and Belgium. The exports of raw sugar from Austria in the 1885-6 campaign up to the end of May amounted to 58,300 tons (against 200,300 tons in 1884-5) and of refined sugar 92,800 tons (against 118,000 tons).

Brazil.

Borstelmann & Co., Pernambuco, May 27, report that the new sugar crop promises well, the weather in May having favored the development of canes very much. Daily receipts 1,230 bags, sales in May 7,000 bags brown Pernambos at 1,050 reis. Shipments since October 1, 84 796 tons, against 106,960 in 1885.

From Bahia Ph. Wm. Kracht reports that during the fortnight ended May 26 little transpired, holders not being ready to subscribe to the lower price determined by the rise in exchange, only 8,000 bags, No. 7-7½, selling at 1,325 reis, equal to 11s., cost and freight per cwt. at an exchange of 21¼d. Of cocoa small lots were selling at 8,200 reis, equal to £64 10s. per cwt., cost and freight. Redwood, 3,000 arrobes were taken for Havre at 700 reis, equal to £6 10s. 4d. per ton, cost and freight. No sales of rosewood.

The expected deficiency in the Brazilian coffee crop is dwelt on at length in the *Diario Official*. The shipments had been as under:

JULY 1 TO MAY 1—RIO DE JANEIRO.

	1885-6.	1884-5.	1883-4.
To Europe.....bags.	957,152	1,058,005	742,336
United States.....	2,238,969	2,312,659	1,674,743
Other countries.....	93,173	119,694	75,540
Totals.....	3,289,294	3,490,358	2,492,619
From July 1 to June 1.....tons.	202,364	219,623	171,444
Equal to bags.....	3,372,733	3,660,383	2,857,233

JULY 1 TO MAY 1—SANTOS.

	1885-6.	1884-5.	1883-4.	1882-3.
To Europe.....tons.	64,588	78,975	67,828	77,090
United States.....	21,522	25,414	21,461	16,170
Coastwise.....	253	525	1,588	694
Totals.....	86,463	104,914	90,877	93,954
From July 1 to June 1.....tons.	92,621	117,212	97,839	100,445
Equal to bags.....	1,543,683	1,953,533	1,630,650	1,673,750

Burmah.

As per cablegram to Fraser & Co., London, the rice movement up to June 15 had been as under:

1886.					
		EXPORT.		LOADING.	
	tons.	Steam.	Sail.	Steam.	Sail.
Rangoon.....	111,000	151,000	.....	8,000	.....
Bassein.....	42,000	97,000	.....	3,000	.....
Akyab.....	53,000	59,000	.....	4,000	.....
Moulmein.....	36,000	6,000	2,000	.....	.....
Totals.....	242,000	313,000	2,000	15,000	.....
Total.....	tons.	555,000	.....	17,000	.....
Grand total (export and loading).....	tons	572,000	.....	.....	.....
1885.					
		EXPORT.		LOADING.	
	tons.	Steam.	Sail.	Steam.	Sail.
Rangoon.....	106,000	153,000	2,000	11,000	.....
Bassein.....	52,000	65,000	3,000	7,000	.....
Akyab.....	62,000	35,000	.....	4,000	.....
Moulmein.....	33,000	4,000	5,000	.....	.....
Totals.....	253,000	257,000	10,000	22,000	.....
Total.....	tons.	510,000	.....	32,000	.....
Grand total (export and loading).....	tons.	542,000	.....	.....	.....
1884.					
		EXPORT.		LOADING.	
	tons.	Steam.	Sail.	Steam.	Sail.
Rangoon.....	163,000	143,000	4,000	24,000	.....
Bassein.....	52,000	52,000	.....	3,000	.....
Akyab.....	45,000	29,000	.....	5,000	.....
Moulmein.....	29,000	4,000	.....	1,000	.....
Totals.....	289,000	228,000	4,000	33,000	.....
Total.....	tons.	517,000	.....	37,000	.....
Grand total (export and loading).....	tons.	554,000	.....	.....	.....

In Upper Burmah a French syndicate, through the medium of an Anglo-Indian

firm, had made great exertions to secure the privilege of working the famous ruby mines, but a group of well-known London firms made the Indian Government more favorable offers and secured the monopoly.

British Guiana.

Advices relating to the progress of the sugar crop are to hand from Demerara, dated May 27, when there had been more showers and it was hoped they might continue. Following are the exports to May 1:

	1886.	1885.
To United Kingdom.....tons.	24,930	27,045
United States.....	13,018	8,500
Sundries.....	542	244
Totals.....	38,490	35,798

Bulgaria.

The Bulgarian authorities at Philippopolis have ordered that all goods imported into North or South Bulgaria shall be subject to a payment of an 8 per cent. duty ad valorem, even if the import duty into Turkey has already been paid. This order has created a very bad impression in diplomatic and commercial circles, as hitherto no duty has been payable on goods imported into Bulgaria through Turkey after the payment of the Turkish dues.

Ecuador.

O. Wolfram & Co. report from Guayaquil May 4 about the cocoa market and crop that the stock of arriba on hand is large and of good quality, selling at \$19.50 per quintal, while Balao was bringing \$18 and Machala \$17, equal to £61 7s., £57 1s. and £54 2s. respectively. Total cocoa receipts up to April 30: 162,158 quintals, against 44,126 in 1885. Crop prospects are very promising.

Egypt.

Mr. Jones, the engineer, who has returned to Cairo from Jemshah, reports that the oil discovered is merely surface oil. He considers that the immediate supply is exhausted, and that other possible similar supplies are not likely to be worth the cost of extraction. He thinks the indications are favorable to the theory that considerable supplies are present at a greater depth, but this theory is purely speculative. The chances are about even. He recommends an expenditure of from £6,000 to £10,000 on purely boring operations before the incurring of further expense. In the face of this report, says a correspondent, the arrangement previously concluded with Mr. Tweddle, involving an expenditure of £50,000, appears injudicious, but the government is unwilling to lose the chance of commanding Mr. Tweddle's practical experience.

France.

The *Journal des Fabricants de Sucre*, Paris, June 24, remarks: Continental sugar markets have been firm during the week, prices of some descriptions even showing a slight advance. The weather is somewhat cold, but no complaints are made as yet; the only feature of interest is the statement of 125 Austrian factories having sown 114,000 hectares, against 80,000 in 1885 and 139,000 in 1884, being an increase of about 42 per cent. against last year. The German increase is stated at about 15 per cent.; in France estimates vary between 15 and 30 per cent., and from Russia a slight decrease is reported. Stocks in the principal Paris entrepôt, 1,259,961 bags, against 1,134,579 in 1885. Visible supply in Europe and America, Havana and Matanzas included, 1,255,568 tons, against 1,267,064 in 1885 and 1,107,440 in 1884.

Advices from the French wine regions are to the effect that after the propitious weather in April, when even night frosts did no harm to speak of to the vines, the months of May and June have, on the contrary, been characterized by a good many hail showers, a cool temperature and a continual heavy rainfall, so that the blossoming period has not had the kind of weather it stood in need of, especially in the Southwest and the Gironde. The South of France has fared better in this respect. On taking a general view of the growing vintage it cannot be called positively in an alarming condition, but warm weather was imperatively needed to prevent diminutive grapes from dropping.

The new sugar-taxation law has passed the French Chambers. The additional duty of seven francs per double-centner on sugar of European origin, which should cease at the end of August, will be continued to September 1, 1888; colonial sugar will be exempted. By this measure the import trade of the free-trade ports of Marseilles and Bordeaux will be furthered. At the same time the sugar industry of North France will be protected against foreign competition. It is especially hoped to counteract the competition of Germany.

Germany.

The May return of the Association of German Iron and Steel Manufacturers calculates the production of pig-iron at 282,236 tons, or 36,370 tons less than in May, 1885. The production of the first five months of the year was 1,427,572 tons, against 1,561,400 tons in the corresponding period of last year.

The efforts of the syndicate of German bankers and manufacturers, which was formed for the purpose of securing, if possible, government railway contracts in China, have not succeeded. The report of the three delegates was laid before a conference, at which the Disconto Bank, the Deutsche Bank and various iron firms were represented. It is stated that nothing could be done in the way of new railway works until the emperor reached his majority, which will be at the end of next year. The opinion was also expressed that the circumstances of the country did not seem to promise the prosperity which had been predicted for new railways;

and besides this, the competition of England was an important consideration to be taken account of. It was resolved that Herr Erich should return at once. A second of the delegates will return in a short time, but the other will remain temporarily in China.

The newspaper press of Alsace-Lorraine has developed enormously during the last fifteen years. In 1870 there were but 30 papers in the departments which now form Alsace-Lorraine, but now there are 122, viz., 52 political, 13 clerical, 11 scientific, 9 agricultural and 37 other papers, including three new humorous illustrated sheets which appear at Strassburg. Of the 122 political journals, 73 appear in German, 24 in French and 25 in both languages. Only the three largest towns have daily papers, Strassburg and Metz having six each, and Mülhausen four. Of the Strassburg dailies, five are printed in German and one in German and French; of the Metz dailies two are German and four French, while of the Mülhausen dailies three are German and one French.

The Vulcan Company, of Stettin, announces the result of the trial trip of the steamer Stettin, built for the Japan-Australia line. The run from Stettin to Bremerhaven was made in six hours, the average speed being 12.77 knots, and the maximum 13.25 knots, while the average speed stipulated for is 12.50 knots. All other requirements have been fulfilled to the satisfaction of the North German Lloyd. The second steamship for the same line, the Lübeck, will shortly make its trial trip. A new development is reported to be contemplated in connection with these services. Negotiations are reported to be going on with various Schleswig-Holstein shipping companies which trade with the East with a view to their starting junction lines in East Asia, to be worked in association with the subsidized lines. What truth there is in this statement we do not know. The launch of the first of the larger vessels for the subsidized lines took place at Stettin on June 30. The steamer Stettin is intended for one of the junction lines. It has left for Hong Kong.

As a result of the Berlin international telegraphic conference the following alterations will come into force from July 1: The telegram fees will be charged by word, and the present "ground tax" will be abolished. The fees will be as follows: Traffic within Germany and with Luxemburg, 6 pf. per word; to Belgium, Denmark, Holland, Austria-Hungary and Switzerland, 10 pf.; France and Heligoland, 15 pf.; Sweden and Norway, Italy, Roumania, Servia, Bosnia, Herzegovina and Montenegro, 20 pf.; European and Caucasian Russia, Spain, Portugal and Bulgaria, 25 pf.; Greece (mainland) with the island of Poros, 40 pf.; other Greek islands and Turkey, 45 pf.; for Great Britain and Ireland the present ground tax (40 pf. with a fee of 20 pf. per word) will remain in force until further notice. The minimum charge for a telegram will be 60 pf.

It is believed that the participation to a very considerable extent of large manufacturers in the German Industrial Exhibition, 1886, may be safely counted on. The industries which decline to take part are chiefly several branches of the textile and iron industries. The large concerns which have already promised to take part in the exhibition include the following: Dr. Werner Siemens, Stettiner Maschinenbau-Aktiengesellschaft "Vulcan"; Königl. Porzellanmanufaktur, Meissen; Kgl. Erzgiesserei München (v. Miller); Dr. J. Weblsky, Wüstewaltersdorf; Friedrich Siemens, Dresden; Dr. v. Jobst, Stuttgart; Geheimrath Wecker, Offenbach; W. Fitzner, Laurahütte; Ludwig Wessel, Bonn; J. A. Henckels, Solingen; Gebr. Körting, Hanover; Gebr. Howald, Kiel; Junker & Ruh, Karlsruhe; Escher, Wyss & Co.; G. Kuhn, Stuttgart; Berlin-Anhaltische Maschinenbau-Anstalt; Schlesische Actiengesellschaft für Leinen-Industrie, vormals Kramsta und Söhne; Dresdener Lederfabrik, F. Robert Bierling; Haniel & Lueg, Düsseldorf; Krauss & Co., München; Schliepe & Baum, Elberfeld; A. H. C. Westermann Söhne, Bielefeld; Fritz Wolff, M. Gladbach; Gebr. Sachsenberg, Rosslau; as well as nearly all the Lower Lusatian cloth manufacturers.

Holland.

The *Nederlandsche Courant*, in its monthly review of the coffee market, dated June 24, remarks that the reported short Brazil coffee crop has produced a firm feeling and upward tendency, the more so as the statistical position has also been steadily improving. Following are the figures for the first four months:

ARRIVALS.						
	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	132,640	174,440	148,100	195,420	162,360	167,710
America.....	81,244	80,467	63,065	66,060	65,504	66,515
Totals.....	213,884	254,907	211,255	261,480	227,864	234,225
DELIVERIES.						
	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	138,300	136,790	110,940	160,770	126,110	120,510
America.....	84,073	84,040	68,983	69,207	68,602	71,446
Totals.....	222,463	220,830	179,923	229,977	194,712	191,956
STOCK MAY 1.						
	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	162,800	180,250	189,250	149,450	145,300	129,000
America.....	30,860	34,274	33,541	21,006	22,483	24,073
Totals.....	193,660*	214,524*	222,791*	170,456	167,783	153,073

* Add in government hands in Holland:

AMERICAN MOVEMENT.						
	1886.	1885.	1884.	1883.	1882.	1881.
Arrivals, 4 mos.....tons.	81,244	80,467	63,065	66,060	65,504	66,515
Consumption.....	83,831	84,013	68,922	64,886	65,195	62,958
Re-export.....	242	27	61	4,321	3,497	8,488
Total deliveries.....	84,073	84,040	68,983	69,207	68,602	71,446
Stock, May 1.....	30,860	34,274	33,541	21,006	22,483	24,073

India.

As per official statistics the shipments of wheat and rice from British India during the fiscal year ended March 31 were as under, in cwts.:

	Wheat.	Rice.
1877.....	5,587,000	19,914,000
1878.....	6,373,000	19,429,000
1879.....	1,057,000	21,250,000
1880.....	2,202,000	22,166,000
1881.....	7,444,000	27,266,000
1882.....	10,001,000	28,888,000
1883.....	14,194,000	31,258,000
1884.....	20,956,000	27,040,000
1885.....	15,831,000	22,052,000
1886.....	21,061,000	28,217,000
Total.....	114,606,000	246,480,000

Of the wheat England received, in 1886, 12,071,218 cwts.; France, 2,661,583; Belgium, 2,145,213; in transit through Suez there went 2,296,153 cwts.

Italy.

During the first four months of the year Italian imports amounted to 487,231,418 lire or francs, and the exports to 366,466,555, against, respectively, 498,814,402 and 425,990,776 in 1885, the total decrease of trade being 71,109,205 lire.

Java.

As per cablegram from Batavia, June 24, the government estimates its this year's coffee crop at 745,300 piculs of 134 pounds, and has fixed the auctions to be held in Java as follows:

	At Samarang.	At Passaroeng.	Total.
August 25.....piculs.	10,000	15,000	25,000
September 29.....	10,000	15,000	25,000
November 24.....	25,000	25,000	50,000
December 22.....	25,000	25,000	50,000

Total.....piculs. 30,000 80,000 100,000
No Radoes and Preangers will be offered at public sale in 1886, the government having resolved to store them, so as to make them assume a brownish and yellowish color, bringing a better price later on. The government Padang crop will not exceed 80,000 piculs.

Shipments of the present sugar crop compare with former crops as follows:

		America.		
Exports during	1885-6.	1884-5.	1883-4.	1882-3.
July-March.....tons.	343,638	347,942	278,144	2,654
April.....	11,380	13,267	8,829	2,654
Total.....tons.	355,018	361,209	286,973	2,654

The total shipments to Europe were 333,087 tons, against 305,320 tons in 1884-5, and 265,127 tons in 1883-4.

Mauritius.

Comparative sugar exports to May 10:

	1885-6.	1884-5.	1883-4.
To United Kingdom.....tons.	14,605	10,832	8,032
France.....	7	43	757
Australia.....	18,370	27,451	39,204
New Zealand.....	5,654	8,428	10,676
Cape of Good Hope.....	3,113	3,793	5,222
Bombay.....	45,618	50,712	35,397
United States of America.....	5,344	8,584	7,583
Other places.....	5,023	2,102	1,060
Totals.....	97,734	111,945	108,021

Philippine Islands.

Mail advices are to hand from Manila to the end of May. Sugar shipments had been as under:

	1886.	1885.	1884.
To Great Britain.....tons.	7,491	4,706	7,269
United States.....	59,329	41,486	34,613
Sundries.....	7,861	14,114	9,513
Totals.....	74,881	60,306	51,395

Cable advices to June 21 show that 71,900 tons had sailed for the United States since January 1, against 54,600 same time last year, and that 62,612 tons were at that date afloat for the United States, against 42,657 June 21, 1885.

Russia.

The capital of the Warsaw steelworks is about to be raised to 19,000,000 roubles under an association of German, English and Belgian firms, and the works will be transferred to Southern Russia.

It is announced from Odessa that Krupp is about to establish a cannon factory at Nicolaieff, on the Black Sea, with the object, it is supposed, of rendering Russia independent of foreign countries in the matter of artillery. The first steps toward the erection of the factory have already been made.

Spain.

The *Correspondencia de España* of June 23 states that merchants and manufacturers in Catalonia and rice-growers in Valencia are in a fever of excitement about the possibility of the Moret Anglo-Spanish modus vivendi treaty being ratified by the Cortes. The clauses of the Moret treaty are even worse than those of the Elduayen treaty, inasmuch as the former includes the Spanish colonies. The

Catalans are afraid Spain will be flooded with Manchester goods, and the people in Valencia apprehend that Indian rice will flood Cuba and Porto Rico. While this excitement has been increasing daily the Congress of Viticulturists met at Madrid from the 7th to the 18th of June, and there considerable hostility was also expressed by a good many members to the Moret treaty. They called attention to the fact that in raising the alcoholic scale of wines to 20°, England favors only 700 Spanish wine sorts out of 2,600; that the advantages England thus grants do not compare with those Spain grants in return, and that it would be a calamity for Spanish industry were the Spanish Congress to ratify the said treaty. The labor associations of Catalonia have even threatened that Catalonia Senators and Deputies to the Cortes will be ordered to withdraw if the treaty passes and the government does not provide for those thrown out of employment through English competition.

United Kingdom.

The text is published of the treaty of commerce and navigation between Great Britain and the Republic of Paraguay. The treaty accords most-favored-nation treatment to British goods and vessels. It applies to all British colonies except those of Canada, Newfoundland, New South Wales, Victoria, South Australia, Western Australia, Tasmania, Queensland, New Zealand, the Cape, and Natal, but may be extended to any of these on notice being given by the British representative in Paraguay within two years from May 10, 1886. The same remark as to the exemption applies to India.

West Indies.

CUBA.—The sugar crop was finished the latter part of June and exceeded that of 1885 by 11 per cent., being 700,000 tons, of which till then 300,000 tons had been shipped, leaving still to be shipped 400,000 tons of new crop and 50,000 remnants of the previous crop still to be disposed of. Following was the movement up to June:

	Boxes.	1886. Bags.	Hhds.
Weekly receipts.....	1,834	48,221	2,084
" clearances.....	1,631	24,361	235
" " to Channel and U. K.....			
Total receipts, including stocks on January 1.....	51,866	1,461,683	45,795
" shipments to all ports.....	20,449	618,248	35,873
" " Channel and U. K.....			
" stock.....	29,396	817,252	19,602

	Boxes.	1885. Bags.	Hhds.
Weekly receipts.....	3,007	24,136	1,326
" clearances.....	1,374	10,480	2,785
" " to Channel and U. K.....			
Total receipts, including stocks on January 1.....	99,423	1,048,827	128,695
" shipments to all ports.....	37,010	454,676	94,632
" " Channel and U. K.....	2,183	34,912	5,136
" Stock.....	49,436	576,360	36,604

TRINIDAD.—Advices from Port of Spain to the end of May are to the effect that the weather had become rainy and that general appearances seemed to point to the wet season having set in. There still remained about one-third of the sugar crop to be reaped. Out of 10,744 hogsheads, 5,619 tierces and 133,685 bags and barrels shipped, 10,771 hogsheads, 4,424 tierces and 58,883 bags and barrels went to the United States.

ACCORDING to very careful computations the population of the world in 1876 was about 1,423,917,000, or twenty-eight persons for one square mile. But it is estimated by a high authority that the population living upon the earth to-day consists of about 1,450,000,000 of individuals—not less, probably more. The population of Turkey in Europe, Asia and Africa reaches 48,600,000 souls, of whom 20,000,000 are divided between Egypt, Tripoli and Tunis, Asia having 13,000,000. The population of the Russian Empire is estimated at 85,536,000, or 900,000 over the population of 1875. The population of the British Indies number 288,000,000; that of China 405,000,000, and that of Japan 33,299,015. London has 3,489,428 souls; Paris, 1,851,892; New York and Brooklyn, 1,585,622, and Berlin, 1,015,000.—*U. S. Economist.*

It is reported, on what seems to be reliable authority, that a very extensive and valuable deposit of white marble has been discovered and opened in Inyo County, California. The San Francisco papers give the following account of the discovery: A company has located 120 acres, and the depth of the bed seems from the outcroppings to be unlimited. The quality varies in different strata from common building material to the finest statuary marble. At present the Vermont quarries furnish the most available supply of marble for full-sized statues. The Italian quarries have been so exhaustively worked that large blocks of pure quality are obtained with difficulty. The importations of European marble into the United States are valued at about \$1,000,000 annually, of which about one-half comes from Italy. The owners of the Inyo quarry expect not only to supplant foreign statuary marble in our own markets, but to export it. If their property half meets their expectations it will be an important addition to the resources of California.

Review of the Markets.

Reports for the Month ended July 1.

Butter.—Supplies have been plentiful and the whole market has suffered, although fine goods are the easiest to manage. The export movement has been light and operators are indifferent. We quote: Creamery, 10@17½¢; State, 10@16¢; Western, 5@13¢.

Cheese.—The cheese market has been steady in late transactions on the basis of 7½¢ for fancy. Shippers have not been manifesting any anxiety, especially in the way of stock to arrive. We quote: New State factory, best white, 7½@8¢; best colored, 7½@8¢; fine, 7½@7½¢; fair, 6½@6½¢; common, 5½@6¢; Ohio factory fine, 7¢; State factory, night skims, 4½@5½¢.

Coffee.—The market for Rio closed strong, and advices from the other side do not show any reasons for a weakening. Fair cargoes are now quoted 9½¢, which is ½¢ advance. The monthly coffee statement of William Scott's Sons is as follows:

Stock in warehouses June 1, 1886.....	bags.	426,930
Received since—		
At New York.....	bags.	122,784
Baltimore.....		28,766
New Orleans.....		18,536
Galveston.....		2,000
		172,086
Total supply.....		599,016

Delivered from warehouses since—

At New York.....	bags.	115,343
Baltimore.....		21,401
New Orleans.....		10,920
Galveston.....		4,000
Savannah.....		1,600
Charleston.....		2,000

Stock in warehouses July 1, 1886—

At New York.....	bags.	330,614
Baltimore.....		64,794
New Orleans.....		33,886
Galveston.....		3,208
Charleston.....		2,100

Total stock..... 443,602

Afloat and loading for United States to May 20..... 22,500

Purchased for United States to June 30 (29,000 Santos)..... 138,000

Total visible supply..... 604,172

In mild coffees East India grades are without movement, but prices are very firm. West India grades are wanted moderately and prices are held steadily. We quote: Rio, ordinary cargoes, per pound, 8½¢; fair do., 9½¢; good do., 9½¢; prime do., 10½¢. Santos, fair to good cargoes, 9½@9¾¢; Java, 17@22¢; Singapore, 12@14¢; Ceylon, 8@12¢; Maracaibo, 8@12½¢; La Guayra, 7½@11½¢; Jamaica, 7½@11½¢; San Domingo, 7½@7¾¢; Porto Rico, 10@12¢; Central American, 9@13¢; Mexican, 9½@11½¢; Angostura, 9@12¢; Savanilla, 8@13¢; Mocha, 20@22¢.

Cotton.—"Spot" cotton ruled steady and has been in moderate demand. Middlings quoted at 9½@9 9-16¢. Options have been active and closed firm at six or seven points advance, owing to bad crop reports. Closing quotations were: July, 9.36@9.37¢; August, 9.45@9.46¢; September, 9.32@9.33¢; October, 9.20¢; November, 9.16@9.17¢; December, 9.10@9.11¢; January, 9.27@9.28¢; February, 9.36@9.37¢; March, 9.45@9.46¢; April, 9.55@9.56¢.

Dry Goods.—During the month just closed there has been a large amount of business transacted, and toward the close the number of buyers in the market has been greatly increased. Not only is this so, but the indications are good for business in the fall. Wool manufacturers have had an increased share of attention, the chief request being for flannels and blankets, many of the former being so reduced in stock that they are now to be had only at a slight advance. Dress-goods, ladies' sackings, soft-wool dress fabrics, underwear, fancy knit woollens, cloakings, &c., have had a large distribution on old engagements, as well as sharing in new business in a satisfactory way. In cotton goods, brown drills have had a very free inquiry from exporters, desirable stocks being well cleaned up and looms well occupied on contracts. Gingshams have had considerable attention, as also cotton flannels. In wide sheetings the distribution by agents has taken care of a good supply and stocks generally are in such condition that values can be preserved with greater steadiness, with the possibility of some improvement in rates. Dress goods have had a good distribution on old contracts, and new business has shown quite a satisfactory degree of vigor. All styles of colored cottons have shared in a wide request, and stocks are very much reduced, denims, chevies, checks and stripes being in only nominal supply. Tickings have improved and fancy and clothing duck have been in better request. Leading makes of bleached cottons are well sold up, and in many instances ahead, while prices are firmer and discounts reduced. The supply of brown cottons has been greatly reduced, and standard sheetings of Eastern and Southern makes are well sold ahead. Heavy and light fine browns have improved their condition very much, while extra fine brown are much firmer, owing to liberal reduction of stocks. In printing cloths, while buyers have not met the views of sellers, sales have been very fair, and quotations are firm at 3½¢ for 64x64 cloths, spots and contracts and 56x60 cloths are quiet but firm at 2 13-16¢ bid and declined. Prints have shown some improvement and promise better.

Drugs and Chemicals.—Trading in drugs and chemicals has been only moderate in amount, and, as a rule, prices are very little changed. Sales have been made of 75 tons of soda ash, at \$1@1.35; 145 casks of bleaching powder, \$1.50@1.55; 45 drums caustic soda, \$2.45@2.50; 30 tons sal soda, 90¢; acetic acid, 1½@2¢; oxalic acid, 6½@7¢; citric acid, 65@66¢; tartaric acid, 43@45¢ for crystals and 44@46¢ for powdered; acetate of lime, \$1.25 for brown; aloes, 7¢ for Cape and 13½¢ for pow-

dered; alum, \$1.75@1.87½ for lump and \$1.87½@2 for ground; ammonia carbonate, 9½¢@9¾¢ for English and 9½¢@9¾¢ for D. and O.; assafetida, 11c.; arnica flowers, 9¢@12c.; albumen, 17½¢ for foreign blood; arsenic, 2¢@2½¢; balsam copaiva, 30¢@33c.; balsam tolu, 31¢@32c.; balsam Peru, \$1.25; bichromate of potash, 9½¢@10½¢ for Scotch; borax, 7c. for refined in bbls.; blue vitriol, 4¢@4½¢; brimstone, 22¢@27.50 for seconds; buchu leaves, 6½¢@10c. for shorts and 26¢@27c. for longs; cantharides, \$1.85@1.90 for Russian; camphor, refined, 22½¢@24c.; castor-oil, 17¢@18c. in bbls. and cases; cardamoms, 60¢@75c. for Aleppo and 50¢@61¢ for Malabar; cassia buds, 10½¢@11c.; camomile flowers, 12¢@15c. for old and 24¢@26c. for new German; cutch, 6½¢@6¾¢; chlorate of potash, 16½¢ for crystal and 17c. for powdered; cochineal, 31¢@31½¢ for Teneriffe silver; cream tartar, 34½¢@35c. for crystals and 35¢@36c. for powdered; gambier, 4½¢@5½¢; ginger, 12¢@14c. for Jamaica bleached and 9¢@10c. for unbleached; glycerine, quoted at 15¢@19½¢; Guarana, \$1.37½; iodide of potash, \$2.65@2.73; ipecacuanha, 87½¢@90c., and powdered, 90¢@91¢; licorice paste, 27¢@28c. for P. & S., and 30¢@32c. for Corrigiano; manna, 55¢@60c. for small flake and 95c. for large flake; morphine, \$1.85@2.40 for domestic; opium, \$2.95@3.10 for new, duty paid; oil cloves, \$1.30@1.35; oil cassia, 65c.; oil anise, \$1.55; oil lemon, \$1.75@2.50, as to brand; oil sassafras, 33¢@37c.; oil wintergreen, \$1.70@1.75; oil bergamot, \$2.25; oil peppermint, \$3.20@3.75 in tin and \$3.50 in glass; crassiate of potash, 20½¢ for American yellow; quicksilver, 46½¢@47c.; quinine, 50¢@52c. for German and 57¢@70c. for American; roots, 4½¢@4¾¢ for gentian; Seneca root, 43¢@45c., and Colombo root, 9¢@12c.; ginseng, \$1.80@2.30; saffaparilla, 60¢@10½¢ for Mexican; seeds, 4½¢@5c. for Trieste brown mustard and 5½¢@6c. for California yellow; senna, 30c. for Alexandria; shellac, for D. C. and L. B. over and S. under, 16½¢@17c. per lb.; V. S. O., 13½¢ per lb.; I in diamond, 13½¢ per lb.; sticklac, —c. per lb.; sugar of lead, 6½¢@7c. for brown and 12c. for white; Tonka beans, \$1.65@1.70 for Angostura.

Freights.—The movement in grain berth freights has been rather limited, and agents of regular steam lines have been obliged to reduce quotations. Full cargo steamers have also been less sought after, and figures have been shaded to effect business to Cork and United Kingdom. The light arrivals of barrel petroleum tonnage have caused owners to advance their views, and some business has been completed on the new basis. Case tonnage is neglected. There is a moderate movement for South American ports and rates are low and unsatisfactory. There have been some orders in the market for the West Indies, but as rates are not very attractive business is limited. Coastwise lumber tonnage is in request and rates are firm.

Quotations from New York to United Kingdom and Continental ports:

	Grain.	Oilcake.	Flour.	Sugar.	Provisions.	Cheese.	Beef.	Pork.	Cotton.
Liverpool (steam)	2 @2½	10.	11.3	13.9	15@20	25@30	3@3.6	2.6@3	9-64
London (steam)	2½@3	11.3	12.6	15.	22.6@25	27.6	4.6	3.3	..
Glasgow (steam)	3	11.3	12.6	13.9	17.6-22.6	35.	4.	3.9	..
Bristol (steam)	3½	12.6	12.6	15.	17.6@22.6	30.	5.	3.6	..
Leith (steam)	4	15.	15.	17.6	20@25	30.	4.6	3.6	..
Hull (steam)	4½	12.6	15.	17.	20@22.6	30.	4.6	3.6	..
Newcastle (steam)	3 @3½	12.6	15.	16.3	20@22.6	30.	4.6	3.6	..
Antwerp (steam)	4½	13.9	15.	17.6	17.6@20	30.	3.6	2.9	½d.

Cork for orders, sail, 3s. 9d.; steam, 2s. 10½d. Direct port, United Kingdom, 3d.@6d. less.

OIL QUOTATIONS.

	Refined Petroleum.	Naphtha.	Cases.
Cork and United Kingdom	2.9 @3.	3. @3.3	Levant..... 16.
Direct port, United Kingdom	2.4½@2.6	2. @2.9	Adriatic..... 17.
Direct Continent.....	2.4½@2.6	2. @2.6	Mediterranean. 14@15
Baltic.....	2.6 @2.9	2.7½@2.10½	

Fruits.—Foreign Dried—Raisins closed strong at an advance, with the market fairly active. Currants and Turkey prunes have been moving moderately; almonds have been in good call and citron closed strong. We quote: Valencia raisins, 8¢@8½¢; loose muscatel, \$2.20@2.15; London layers, \$2.45@2.50; Sultana, 7½¢; Ondara layers, 11c. Almonds—Princess, paper shelled, 24c.; Sicily shelled, 21½¢@22c.; Jordan, 43¢@46c.; Tarragona, 14c.; Ivica, 13½¢@13¾¢; Languedoc, 14½¢. French sardines, 12½¢ for quarter boxes and 15½¢@17c. for half boxes. Citron, 18½¢@19c. Currants, 6c. Figs, 10½¢@14c. Turkey prunes, 3½¢@13½¢; French prunes, 7½¢@15c. Grenoble walnuts, 12½¢; French do., 6¢@7c.; Naples do., 14½¢. Sicily filberts, 7½¢@7¾¢. Dates, 5½¢@6½¢ for Persian in boxes, and fards, 7¢@8c. Brazil nuts, 5¢@5½¢. In fresh fruits quotations are: Apples—Norfolk, per bbl., \$2.20@2.50. Strawberries—Western New York, per quart, at 8¢@10c.; up river, per quart, at 3¢@6c., and to 8¢@12c. for extra choice lots. Cherries at 6¢@8c. for dark red large, 8¢@10c. for up river dark red prime, 7¢@9c. for do. white large. Currants at 7¢@8c. for up river large and 4¢@5c. for small. Gooseberries, per bushel, at \$1. Raspberries at 6¢@7c. per quart for Maryland, and 7¢@7c. per quart for blackcap. Huckleberries at 10¢@12c. per quart. Peaches at \$1.20@1.50 for prime Georgia and South Carolina per crate; \$2.50@3 for prime North Carolina per bushel crate, and 50c. to \$1.50 for fair and good lots. Plums at \$1.27@1.75 per crate. Domestic Dried—Evaporated apples have been in favor and supplies in the hands of a few. We quote: Apples—Fancy evaporated, 7½¢; choice, 7½¢; do. prime, 7¢@7½¢; fancy North Carolina sliced, 4c.; choice do., 2½¢@3c.; choice Tennessee quarters, 1½¢@2c.; State quarters, 2½¢@3c.; Southern sliced, prime, 1½¢@2c.; do. common, —c. Peaches—Peeled North Carolina, choice, 11c.; fancy, 12¢@12½¢; Georgia, choice, 10¢@11c.; do. prime, 8¢@9c.; unpeeled halves, 2½¢@3c.; unpeeled quarters at 2½¢@2½¢; Delaware evaporated, peeled, —c. Choice pitted cherries, 10c. Evaporated raspberries, 15c.; sun-dried do., 13c. Blackberries—Prime, 6½¢@7c. Whortleberries, 6c. Plums, 5c.; do. California, evaporated, —c.

Flour and Meal.—The flour market has been sluggish and there have been no signs of improvement apparent. West Indian and South American shippers

have been paying some attention to favorite and well-known brands of city milled, and good Western extras command sale. Other kinds are neglected and prices are lower and nearly nominal. We quote: Spring wheat—No grade, \$1.75@2; fine, \$2.20; superfine, \$2.30@2.80; low extra, \$3.10@3.25; clears, \$3.35@4; straight, full stock, \$4.45; patent, \$4.40@4.90. Winter wheat—Fine, \$2.25@2.80; superfine, \$2.70@3.10; No. 2 extra, \$3.10@3.35; No. 1 extra, \$3.50@4.35; straight white wheat, \$4.10@4.40; patent, \$4.50@5; city mills, S. A., \$4.50@4.70; patent, \$4.40@4.85; West India, barrels, \$4.25@4.40. Southern flour has been dull, reduced prices failing to induce buying to any extent. We quote: Fine, \$2.50@2.75; supers, \$2.90@3; extras, \$3.75@4.35; Richmond first, \$4.90@5; Richmond second, \$4.40@4.50; patents, \$4.75@5. Rye is dull, but prices closed fairly steady at \$2.30@2.40 for fine, and \$2.25@2.35 for superfine. Corn meal is dull and lower. We quote: Western (kiln-dried), \$2.30@2.85; do (granulated), \$2.65@2.75; Brandywine, \$2.65@2.75, and Sagamore, \$2.70@2.75. Bag meal is quiet at 85¢@90c. for coarse; 95¢@91¢ for fine yellow, and \$1.05 for white.

Grain.—Wheat—Options have not been overactive, but in spite of adverse cables, &c., the market has been sustained and closed firm at a slight advance, July closing at 84½¢, August 84½¢ and September 85½¢. Cash wheat has been dull, but the scarcity of good graded wheat, coupled with a decrease of a million and a half bushels in the visible supply, has begotten a feeling of firmness on the holders and full figures have been realized, late sales including No. 2 Chicago spring at 82¢@82½¢; No. 2 Milwaukee at 82¢@82½¢; No. 1 hard at 85½¢@86c.; No. 1 red at 92c.; No. 2 red at 86c.; No. 2 red, f. o. b., at 85¢@85½¢; No. 3 red at 81c. Corn options have been slow for the most part, and figures show very slight changes. Closing prices were: July, 46c.; August, 45½¢; September, 46c.; October, 46½¢. Cash corn is scarce. No. 2 mixed has ranged from 47¢@52c. in elevator and 48¢@54c. afloat, but carloads only have been available at any price. In oats options have been in moderate request. Cash oats have been asked for, but the offerings are small and the market is firm. We quote: No. 1 white, 43c.; No. 2 white, 38¢@39c.; No. 3 white, 37¢@38c.; No. 1 mixed, 35c.; No. 2 mixed, 34½¢; No. 3 mixed, 33½¢; rejected, 32c.; No. 2 Chicago, 35½¢; mixed, on track, 34¢@35c.; white, on track, 37¢@43c.

Leather.—The demand in the leather market has been only moderate, and values closed at figures only slightly altered. We quote: Hemlock Sole—Non-Acid Buenos Ayres—Light, first selection, 21¢@22c.; middle do., 22¢@23½¢; heavy do., 21¢@22½¢; light seconds, 19¢@20c.; middle do., 19½¢@20½¢; heavy do., 19½¢@20c.; damaged, all weights, 17¢@18c.; non-acid California—light, first selection, 21¢@22c.; middle do., 21½¢@22c.; light seconds, 19¢@19½¢; middle do., 19¢@19½¢; heavy do., 19c.; non-acid common hides—light, first selection, 20c.; middle do., 20½¢@21½¢; heavy do., 20¢@21½¢; light seconds, 18¢@19c.; middle do., 18¢@19c.; heavy do., 18¢@18½¢; damaged, all weights, 16¢@17c.; rejects, 13¢@14c.; acid hides of all kinds—light, first selection, 20c.; middle do., 20½¢@21½¢; heavy do., 21¢@25c.; light seconds, 18¢@19c.; middle do., 18¢@19c.; heavy do., 18¢@20c.; damaged, all weights, 15½¢@16c. Union Tanned—Slaughter—Light-backs, 30¢@30½¢; middle backs, 30¢@30½¢; middle backs, heavy, 30c.; seconds backs, 28c.; light crop, 28c.; middle crop, 28¢@28½¢; bellies, 15¢@15½¢. Calcutta Buffalo—Light, 18½¢@19c.; middle, 17½¢@18½¢; damaged, 15¢@17c.; poor damaged, 13¢@14c.

Lumber.—In consumptive outlets, the movement shows a falling off, but at first hands there is an irregular tone to the market, with the tendency in favor of buyers. Lath is in light supply, and in spite of very moderate demands the market is steady at \$2 per M. for Eastern. We quote: Eastern spruce at \$12@15 for random cargoes, \$15.50@16.50 for special lots; yellow pine at \$18@19.50 for random cargo lots, \$19.50@21 for extra cargo lots, \$17@18 for green flooring boards and \$21@22 for dry do.; white pine at \$14@15 for box boards, \$16@18 for West India shipping lots; \$28@30 for South American shipping.

Metals.—Copper—Both buyers and sellers of ingot are apparently indifferent as far as Lake brands are concerned, while other brands are virtually neglected. Spot lots of Lake are quoted at 10¢@10½¢, and outside makes at 9½¢@9¾¢. Iron—The position of the market for American pig remains very satisfactory. New business and deliveries on contracts continue to keep supplies in good shape, and for anything that is not positively an inferior article prices remain quite firm. There is a very fair demand, with the call not wholly restricted to the most popular Lehigh irons, but extending to State and Southern brands, and in more than one instance first-class Lehigh brands are found scarce for early delivery. The latter are quoted at \$18@18.50 for No. 1 X, foundry, \$17@17.50 for No. 2 X foundry, and \$16 for gray forge. Sloss iron brings about the same figures. Hudson River and Virginia makes are quoted at about \$17.50 for No. 1 X and \$16.50 for No. 2 X. Virginia forge, about \$15@15.50 at tidewater. Scotch pig continues to sell to a fair extent in moderate lots, and is without essential change in value. We quote: \$17.50@17.75 for Eglington, \$18.25@18.50 for Dalmellington, \$18.50@18.75 for Glengarnock, \$19 for Gartsherrie, \$19.25@19.50 for Summerlee, \$19.50 for Langloan and \$19.75@20 for Coltness. Old Material—Tee rails have been in fair demand and for nearby delivery \$19 could be obtained, but business has been restricted, as holders want more money. Steel rails are in rather more demand, with \$20 quoted. Wrought scrap is held at \$19 in yard, but lots have been sold ex-vessel at \$18. Car-wheels are quoted \$15.50@16. Steel Rails—While there are still orders in the market, there are no sales of importance, as manufacturers are unable to accept any contracts that call for delivery within the next three months, while two of the largest mills have sold their allotted production for the year. Prices, however, are not over firm at \$34@35 at works. Tin—Pig is less animated, but values remain strong. There have been sales of Straits at 22½¢@23c. cash, 22½¢@22½¢ for July, 23c. for August and 23½¢ for October delivery. Store lots were held firmly at 23c. cash, and 23 1-10c. thirty days. Tin plate remains quiet, with but little doing outside of ordinary store trade. Prices throughout still favor the buyer somewhat. We quote: I. C. charcoal, ¼-cross assortment, \$4.70@4.75 for Allaway and \$5.30 for Melyn grade; for each additional X add \$1 and \$1.50, respectively. I. C. coke, \$4.30@4.32½ for B. V. grade; \$4.37½ for J. B. grade. Charcoal terne, \$4.20@

4.25 for Allaway grade; \$4.30@4.35 for Dean grade, 14x20, and \$8.40@8.50 and \$8.65@8.70 respectively for do. 20x28.

Molasses.—Buyer: are only taking such quantities of domestic stock as their necessities require, preferring that the stock should remain as close as possible in first hands. Really attractive parcels, however, are firm and are not at all crowded on the market, holders waiting until the demand develops. Foreign grocery grades are having about their usual attention and are unchanged as to price, while for boiling stock the market is quiet but firm. Straight sugar syrups are moving only as buyers' actual necessities require, although desirable good command full prices. Sugar-house molasses is quiet and uncertain, although indications point to a steadier market. We quote: Porto Rico, 30@40c.; Barbadoes, 23@25c.; Demerara, 15@17c.; Martinique, 15@17c.; New Orleans, 38@40c. for best, 36@38c. for choice, 32@34c. for prime, and low grades, 17@20c. Sugar-house molasses, 10c. for ordinary in hhd., 12c. for extra heavy, and 11c. in bbls. Sugar, 16@17c. for low, 20@22c. for common, 22@23c. for fair, and 24c. for best.

Naval Stores.—The market for turpentine is steady and is without important change, mercantile orders being quoted at 32½c. There is a steady trade in fine grade rosins but the market is quiet otherwise. We quote: Strained at \$1; good strained at \$1.05; No. 2 (E) at \$1.15; No. 2 (F) at \$1.35; No. 1 (G) at \$1.45; No. 1 (H) at \$1.75; good No. 1 (I) at \$1.95; low pale (K) at \$2.45; pale (M) at \$2.80; extra pale (N) at \$2.95; window glass (W) at \$3.25. Tar quoted at \$1.90@2.25 for Wilmington; pitch quoted at \$1.50@1.60.

Paper.—There has been a steady but quiet business during the past month, the mills, as a rule, being well supplied with orders. Writings are steady and in moderate movement. Book is in moderate demand and fairly steady. The strawboard manufacturers have advanced prices 5 per cent., have abolished all discounts and agree to reduce production eighty tons per day. The wall-paper combination has been formed for the coming year. Three large manilla mills have shut down and will remain idle two months, taking a thousand tons out of the market during that period and having a tendency to steady the market. Straw wrappings are quiet and weak. We quote: Fine flat caps, 13@15c.; superfine, 16@18c.; record and ledger, 18@22c.; supersized and calendered book, 7½@10½c.; do. do., extra machine finish, 7@7½c.; do. do., low grade, 6½@7½c.; news, No. 1, 5@5½c.; do., rag and wood, 4½@5½c.; do., straw, 5½@5½c.; manilas, No. 1, light weight, 7½@8½c.; do., heavy weight, 6½@7c.; No. 2 manilas, 5@6c.; No. 3 do., 2½@3c.; straw wrapping, heavy weight, 1½@2c.; do. do., light weight, 2½@2½c.

Petroleum.—The "bears" have had the upper hand of the market and certificates have declined, closing at 67½@67¾. Refined in barrels closed quoted at 7½c. for 70° Abel test at all ports, with refiners firm, demands moderate, and bids a trifle lower. Case oil is quoted on the basis of 8½c. for plain brands. Home trade lots barreled oil quoted at 8½@9c. for 110 test standard white; 9½@9½c. for 120 test do.; 9½@9½c. for 130 test do.; 9½c. for State test do., and 10½c. for 150 test water white. Crude in barrels was quoted at 6c. for Bradford and 6½c. for Parker. Prime city naphtha was quoted at 8½c.

EXPORTS OF REFINED, CRUDE AND NAPHTHA, FROM ALL PORTS, JANUARY 1 TO JUNE 30.

	1886.	1885.
From Boston.....gals.	2,868,733	4,121,882
Philadelphia.....	71,227,188	69,408,071
Baltimore.....	6,013,321	5,254,073
Perth Amboy.....	1,593,770	.....
Totals.....gals.	82,603,012	78,786,826
From New York.....	195,236,122	181,724,666

Total exports from United States..... 277,839,134 260,511,492

Provisions.—Pork.—The Western markets have been strong and figures have been advanced, and the New York markets have followed the example. Quotations closed: \$10.50@11 for old mess, \$11.50@12 for new mess, \$12@12.75 for family mess, \$13@14.75 for clear back, \$9.50@10 for extra prime. Dressed hogs are firm and in demand at ¼c. advance. We quote: 6½c. for bacon averages, 6½c. for 180 lbs. average, 6½c. for 160 lbs. average, 6½c. for 120 lbs. average and 7c. for pigs. In city meats bellies have taken a jump and we note sales loose, 12 lbs. average, at 6@6½c., 6½c. ruling at the close; for 9 lbs. average 6½c. is quoted. Among other sales we note pickled hams at 11c., city pickled shoulders at 6@6½c., smoked shoulders at 7c.; pickled hams at 11c. and smoked hams at 12c. For Western delivery exporters are offering extreme prices for shoulders, light long clears, short rib and Cumberlands, but packers are not offering supplies this side of August delivery, with shoulders probably as high as \$5.75. All meats are sparingly offered, Chicago prices being \$6.45 for short clear, \$6.30 for short rib and \$6.25 for long clear. The beef market is quiet and quotations are: City extra India mess at \$11.50@13 in tiers; extra mess in barrels at \$8; packet at \$8.50 for barrels; plate at \$8.50. Trading in beef hams is slack and quotations are \$20.50 at Chicago and \$21.50@22 here. Lard has been showing an upward tendency, options closing as follows: July, 6.85@6.95c.; August, 6.86@6.88c.; September, 6.96@6.97c. and October, 6.85@6.87c. Western steam on spot sold at 6.95c. and city steam at 6.50c. There was no demand for refined, and rates are without basis. Continent is quoted at 7c., with South American lots held at 7.15@7.30c.

Starch.—Western corn has been in very fair inquiry and closed firm at 2½@2¾c. for bbls. and 3c. for boxes. Potato is quiet but steady at 3½@3¾c.

Stearine.—The stearine market has been strong, following lard, with 7½@7¾c. for Western and city, and 6½c. asked for oleomargarine and 6½c. bid.

Sugar.—Raw.—There has been a fairly active demand, and consumers have bought quite freely on spot and to arrive at firm prices. Transactions on the spot have been on the basis of 4 13-16@4 15-16c., for fair to good refining and 5 7-16c. for 96° test, centrifugals, the market closing firm at these prices. Beet has been light as to offerings and suitable grades are said to be scarce. Late sales have been St. Domingo centrifugals, basis 96° test, 5 7-16c.; Cuba Muscovado, 90°@91° test, 4½@

5c.; Martinique, 88½° test, 4 13-16c.; Cuba Vacuum Pan, 93½° test, 5½c.; St. Kitts Muscovado, 88° test, 4 23-32c.; do., 87° test, 4 11-16c.; do., 89° test, 4 13-16c.; Maranh, 81½° test, 4½c.; Pernambuco, 86.70° test, 4½c.; Cuba centrifugal, basis 96° test, 5 17-16c.; Cuba Muscovado, 86° test, 4 9-16c.; Cuba molasses, 86° test, 4 5-16c.; St. Domingo centrifugal, 94.80 test, 5½c.; Trinidad, 87° test, 4 11-16c.; do., 80° test, 4c.; Trinidad molasses, 85° test, 4½c.; St. Vincent Muscovado, 88½° test, 4 13-16c.; do., 79½° test, 4c.; Muscovado, 88½° test, 4 13-16c.; Viquez concrete, 80° test, 4c.; Demerara centrifugal, 94.70° test, 5½c.; Cuba centrifugal, 95½° test, 5½c.; Cuba molasses, 90° test, 4½ ex-ship. Refined.—There has been a moderately active demand. We quote for export: Cut Loaf, \$3.96; cubes, \$3.46@3.52; crushed, \$3.96; powdered, \$3.84@4.21; granulated, \$3.33@3.39.

Tea.—There has been a pretty steady demand, in which all grades have shared, late inquiry being particularly directed to oologs. The sales at the closing auction included: 4,223 half-chests teas as follows: 730 half-chests Moyune green, including 12 half-chests twankay at 8c.; 122 half-chests hyson, at 11½@18c.; 402 do. young hyson at 9½@33½c., 59 do. imperial at 16@20½c., and 144 do. gunpowder at 11½@32c.; 972 half-chests Japan, including 627 half-chests pan-fired, at 16@27c.; 257 do. basket-fired at 12½@30c., and 88 do. siftings at 4@8½c.; 482 half-chests congou at 13½@27c.; 1,181 do. Formosa oolong at 19½@38c.; 230 do. Foochow oolong at 18½c.; 569 Amoy oolong at 15@18c.; 63 do. India at 19½@26c.

Tobacco.—Kentucky has been in light demand, but values are steady for prime and easy for inferior, sales for June aggregating 1,700 hhd., of which 1,300 for export, 400 to manufacturers and 100 to jobbers. We quote: Common lugs, 4½@6c.; good, 5@6½c.; common leaf, 5½@8c.; medium, 7@9½c.; good, 9@11c.; fine, 11@12½c.; selected, 13@15c. Sales of seed leaf for June aggregate 10,400 cases, of which 9,600 for export and 800 for home trade. Late sales have been Pennsylvania, crop 1883, 8½@11c.; Little Dutch, crop 1884, 13½c.; Zimmer's Spanish, crop 1884, 10c.; New England Havana, crop 1884, New York Havana, crop 1884, and Pennsylvania, crop 1885, on private terms. We note sales of Havana, 60c.@\$1.05, and Sumatra, \$1.30@1.60. Late exports have been 797 hhd., 128 bales, 267 cases; to Bremen, 300 hhd., 105 cases; Hamburg, 90 do., 66 hhd.; Glasgow, 73 do.; Liverpool, 191 do.; Bordeaux, 67 do.; Barbadoes, 30 do., 13 cases; Gibraltar, 50 do.; Lagunayra, 4 do., 76 bales; Porto Rico, 20 do.; Aspidwall, 32 do.; Avonmouth, 36 hhd.; Lisbon, 8 do.; London, 15 do.; Point-a-Pitre, 4 do.; Demerara, 4 do.; St. Pierre, 2 do.; St. Martin's, 1 do.; Havana, 4 cases, and Montego Bay, 1 do.

MONTHLY STATEMENT OF STOCKS OF SPANISH TOBACCO.

	Havana.	Cuba.	Cienfuegos.	Yara.
Stock on hand June 1, 1886.....bales.	49,865	144	139	137
Received since.....	4,218	16	....	55
Totals.....bales.	54,083	160	139	192
Delivered since.....	9,450	60	139	25
Stock on hand July 1, 1886.....bales.	44,624	100	....	167

Wool.—A fair demand has characterized the market for Domestic Fleece, and prices have been held firm, full rates being paid for all kinds. The Ohio clip, it is reported, is being bought up at first hands at 32c., which price is readily paid. Late sales have been: Spring Texas at 17@23c. lb.; fall Western, 14@15c.; X and XX Ohio, 34@35; ½ blood, 34@36c.; fine unwashed, 24c.; unmerchantable, 25c.; Oregon, 23c.; also spring Texas, medium scoured do. and fall Texas, on private terms.

Catalogues and Price-Lists.

TO READERS.

THE Catalogues and Price-Lists herewith noticed are valuable for reference. In sending for such lists our readers should mention the date of issue and the page number of THE MAIL in which they are noted.

SAMUEL JOHNSTON & Co., Brockport, N. Y., U. S. A.—Illustrated catalogue of harvesting machinery, self-rake binders, reapers, &c.

FREDERICK, SHENKEL, ALLEN & Co., East Liverpool, Ohio, U. S. A.—Price-list of pottery, including cane-colored, Rockingham and white-lined ware.

KEMP & BURPER MANUFACTURING COMPANY, Syracuse, N. Y., U. S. A.—Illustrated and descriptive catalogue and testimonial pamphlet of fertilizing machinery.

SNYDER & DAVIS, Canton, Ohio, U. S. A.—Illustrated and descriptive catalogue of well-drilling machinery.

LOWELL WIRE WORKS, Lowell, Mass., U. S. A.—Illustrated catalogue and price-list of white lustral wire ware.

JOHN HUTCHISON MANUFACTURING COMPANY, Jackson, Mich., U. S. A.—Descriptive catalogue and price-list, with illustrations of corn-sheller, wheat-cleaning machinery, suction fans, pulleys, &c.

D. C. & H. C. REED & Co., Kalamazoo, Mich., U. S. A.—Illustrated catalogue of spring-tooth harrows, cultivators, broadcast seeders, &c.

LIGOWSKY CLAY PIGEON COMPANY, Cincinnati, Ohio, U. S. A.—Circular, &c., with descriptions and testimonials of "clay pigeons," or substitutes for birds to be used for sporting purposes.

ADAMS & YOUNG, 479 Broadway, New York, U. S. A.—Illustrated catalogue and price-list of lawn tennis, croquet and sporting goods.

THE Dominion Government has appropriated the sum of \$25,000 for military works in British Columbia, which, the Minister of Militia explains, will be expended as a preliminary outlay upon extensive earthworks and other military defenses at Esquimalt, and whose total cost would reach the sum of \$100,000.

General Notes.

THE production of Bessemer steel ingots in 1885 was 1,701,757 net tons, or 1,519,426 gross tons, an increase of 161,162 net tons over the production of 1884.

ON the Mojave desert, California, a large body of very fine chalk has been discovered, purer, it is described, than English refined chalk, containing no grit, &c.

OZOKERITE has been once more discovered in the West, this time near Lander, W. T., in the Big Horn Mountain. It remains to be seen whether the substance is not again dried oil, as was the case with former discoveries of ozokerite.

IN Napa County, Lower California, according to the *St. Helena Times*, there are over 20,000 olive trees growing. From the names of planters given by the *Times* it appears that this resuscitated culture is mostly in the hands of German settlers.

PHILADELPHIA, Pa., and Rochester, N. Y., have what are believed to be the cheapest electric lights in the United States. The price per night is 45 cents at Rochester, 48 to 59 cents at Philadelphia. The average charge through the United States for 200 candle-power lamps will approximate 60 cents per night.

THE Mexican Government has granted a concession to the governor of the State of Durango for the construction of a railway to unite the city of Durango with the Mexican Central Railroad. The government has also granted a concession for a steamship line between San Diego, Cal., and San Jose de Guatemala, the company to receive \$8,000 subvention for each round trip.

A GENTLEMAN from Eagle Pass, who visited San Antonio lately, gave the news that the Ferrocarril Internacional Mexicano Railway will be extended to connect with the Mexican Central Railway, the work to begin shortly. The point reached by this road at present is the town of Castania, and from this point 250 miles will be built without stopping. Lerdo will soon be connected with Eagle Pass, and an all-rail route between San Antonio and the City of Mexico will soon be established.

THE growth of the Calcutta wheat and oil-seeds trades has rendered improvements for handling them necessary. A proposal for expending 1,18,000 rupees was recently rejected by the government. This course has caused considerable comment, and in a protest signed by all the merchants engaged in the export trade the memorialists make out their case so conclusively that the railway companies have consented if only the government will not withhold its sanction.—*Calcutta News*.

ACCORDING to the Custer, Dak., *Chronicle*, feldspar of uncommon purity is found in that section of Dakota. It is described as having the whiteness of alabaster and being free from all foreign substances which would impair its value for manufacturing purposes. It is a perfectly white and translucent silicate of soda and alumina, such as is used for the finest china ware, and is the finest quality of the so-called China clay used as a sizing and filling material in the textile industry, and which is now almost exclusively imported from England.

THE 24-o'clock system is still attracting attention. At the recent general time convention, H. Stanley Goodwin, general superintendent of the Lehigh Valley road, introduced the subject, and it was referred to a committee consisting of Charles Neilson, G. M. Beach and H. P. Haines. This committee was instructed to report at the next meeting, to be held in New York, October 13. Meantime the 24-hour plan will be in operation on the Canadian Pacific and perhaps some other railways, and its practical advantages, especially on long lines, will be capable of demonstration.

SACCHARINE, the latest development of German chemistry, is a product from coal tar, sweeter than sugar. According to Ivan Levinstein, it is 230 times sweeter than the best cane or beet-root sugar, and sweetens 10,000 times its own weight of water. Besides its great sweetness, which recommends it for domestic use, it has no properties which are injurious to the human system, like sugar, as has been proved by experiments at a Berlin hospital, where patients suffering from diabetes have been treated with saccharine without being in the least inconvenienced by it.

THE new and beautiful art sometime since devised in Germany, of producing mother-of-pearl designs on cloth, is likely to become quite popular. As practised, a thin layer of india-rubber is spread over a thin copper plate, on which the design is cut, the cloth being then spread over the plate, and a hot roller is passed over it, the heat causing the india-rubber layer to become liquid, and by pressure it adheres to the cloth, on which the required design is thus obtained. At this stage the cloth is next covered with powdered mother-of-pearl, which is spread uniformly and smoothly by means of a hot roller, and the excess of mother-of-pearl which does not stick to the cloth is taken away by means of a soft brush. After this operation has been performed, the cloth is covered with very fine crêpe which has been wetted in gum-water, and after drying, the crêpe, by being made fast on the cloth, serves to protect the mother-of-pearl powder from falling off, while, owing to its fineness and transparency, it does not spoil the brilliancy of the powder.

THE cannon foundry at Bourges has two 20-ton cranes for the handling of very large ordnance. Each of these is worked by a special electrical motor, with current furnished by a single generator. The power is transmitted a distance of 120 metres, and is about 13 horse-power out of 25 horse-power. The working has always been effected without accident. In the same establishment there have also been employed since the year 1879 two Gramme dynamos, one as a generator, the other as receiver for the testing of metals by means of a traction machine.

MESSRS. SCOLA and Ruggieri have suggested a modification of the usual method of firing shots in mines. The ends of two cotton-covered wires are wound upon a small wooden cylinder. Around the wires is a cartridge filled with a mixture of chlorate of potash, saltpetre, sulphide of antimony, and finely divided carbon; the latter is used to give feeble conductivity to the mass. The wires are connected with an induction coil, and a spark obtained at will to explode the mixture and powder or dynamite of the charge.

PAWNBROKERS seem to be doing a thriving business in Mexico, but they often render themselves amenable to fines for infractions of the law. In the City of Mexico alone there are no less than sixty pawnshops, with an approximate capital of \$2,500,000. The rate of interest varies from 4 per cent. a month up to 77 per cent., the maximum charged when articles are long pawned. The average amount lent in any one quarter is \$825,114.35, and in the year thirty pawnbrokers were fined for infractions of law \$1,178.

THE British shipbuilding trade does not improve. On the Clyde, yards are reported very slack. On the Tyne, the iron and steel shipbuilding business is far from brisk; orders for merchant steamers are scarce, but work on war vessels goes on with almost more activity than peace-lovers like to see. There is also no revival in the other shipbuilding ports. Although engineers are here and there in receipt of more orders, there is no general improvement.—*Public Ledger (London)*.

THE Tampico division of the Mexican Central Railroad is now completed from Tampico to a point 160 miles distant from San Luis Potosi. From that point to the plateau the grading is partially done, and the work is progressing slowly, says the *Mexican Financier*, in spite of the non-receipt of any further funds for construction account from the Boston office. The State government of San Luis Potosi keeps up its subvention, amounting to \$5,000 or \$6,000 per month.

American versus English Steel.

A CORRESPONDENT of the San Francisco *Chronicle* recently visited several large steel-ware manufactories in the Eastern States, with a view of learning whether the best steel was made in America or imported from Europe. He narrates the following experience: One manufacturer led the way into a long room full of wheels and forges, and walking up to a pile of flat bars, something like thick hoop-iron, chose two.

"Here," said he, "are two bars of steel, one of the best English and one of the best American make. Now watch what I am about to do."

The two bars were thrust into a heat of live coke and held there until both assumed a cherry redness, and then were both plunged into a tub of cold water. Then an end of each was laid on an anvil, a sharp

blow was given with a hammer and a corner from each was snapped off.

"Now look at the broken edge and tell me what you see," said the cutler.

"What I see," said the reporter, "is that the broken part looks like the loveliest French gray silk. The grain in each is beautifully fine, as though it were a mass of the most beautiful crystals."

"Do you see any difference in the grain of the two?" persisted the cutler.

"Scarcely," was the reply, "and yet I should say that this is a trifle the finer."

"The one you have indicated is American steel," said the cutler. "Now here is another test. Bend a knife-blade, Jim," he said to a workman. The man took a rough but tempered blade from a pile before him, thrust it in a hand-vise, and leaning the tip on the anvil it bent into a hoop, only to fly back straight again when released. "That's American steel," said the cutler. "Now come upstairs, and I'll show you another test."

In the upstairs rooms a row of men sat behind a row of giant grindstones, grinding razor blades.

"Have you any difficulty putting an edge on these?" asked the cutler of the foreman. "None." "Do they hold the edge?" "Admirably."

"Do they hone well?" "Easiest in the world."

"These," said the cutler, "are made of American steel, and I don't think I can answer your question any better. The best steel in the world to-day," he went on, "is the best American steel, and the best cutlery in the world is that which is made out of American steel. Yes, sir, and the best steel workmen to-day are the Americans. Why, when we get an English workman here with his ability only to do a single class of work, he can't earn his salt until he has learned American ways." In reply to a question as to what proportion of English-made cutlery is imported to-day compared with what was imported five years ago, the reply was as follows:

"That is something outside of my line. I only know that the belief in English cutlery leading the world has gone out of fashion. Not very long ago you had to show imported goods in order to make sales; now the conditions are reversed, and American goods—especially razors, carvers and scissors—receive the preference. The only thing in which we cannot as yet compete successfully with England is the pocket cutlery. But the explanation of that is simple enough. A penknife, as you will see, is made up of a number of pieces. There are the tips, the rivets, the plate, the spring, the horn or pearl for the handle, and so on. The English manufacturer gives these pieces out and the whole family of a workingman is employed at home working them into shape at starvation wages. We haven't come to that yet, and I hope we never shall, and until American machinery takes the place of these poor people toiling in their hovels, England is welcome to her monopoly of pocket knives."

"American steel," said another cutler, "is making almost daily progress, and certainly American cutlery in many respects is unequaled. There are many conservative people yet who imagine it is the correct thing to have English knives and forks on their tables, but that idea is rapidly dying out. There is no razor so good as an American razor, of which there are now hundreds of first-class brands, while the American scissors and shears have actually driven the English article out of the market. The American brand on most cutlery now, is, in fact, the selling one."

Business Notices.

STEWART HARTSHORN calls the attention of the trade to the facsimile of his signature which is placed diagonally across the label of every shade-roller of his manufacture. Sometimes imitations are sold as the genuine article. Dealers need not be imposed upon if they will only examine the label. The Hartshorn roller meets requirements too exactly for buyers to neglect this precaution, and they should therefore be careful to observe it.

BOULTON STANDARD CARBON COMPANY, Cleveland, Ohio, U. S. A., is now in full running order turning out large quantities of superior carbons for electric-lighting purposes. Most manufacturers and purchasers of carbons throughout the world have long been familiar with the name "Boulton" in connection with the manufacture of strictly

first-class carbons, but it is only recently that Mr. Boulton has undertaken and is now giving his whole time and attention to this new enterprise. Orders are pouring in and the demand is for high-test carbons.

THE Parmenter Crayon Company, Waltham, Mass., U. S. A., has added to its specialties a line of mill crayons. They will be made in fourteen colors, of great regularity, and as they will mark readily on cloth or paper, are daily growing in popularity. This company has been established more than half a century, and its manufactures are known in all parts of the world where crayons are used. It is the only maker of the "Pyramido" crayon, which is hexagonal in shape, making it impossible to roll, and thus preventing much breakage. The corners afford means of making finer lines and the shape gives better control than can be secured with round crayons. The company continues to manufacture its well-known dustless crayons, enameled, in two colors, purple and yellow. The last-mentioned are absolutely free from grit, and are said to be the best for school use ever made.

SPORTSMEN who want not only practice, but genuine sport with the gun will find the clay pigeon an admirable substitute for birds. This is a light convex disk of clay which can be thrown from a trap which is made for it, its flight much resembling that of a quail or a pinnated grouse. The disk is very brittle and in flight it skims along horizontally, or at such an angle as may be desired, and settles gently down to the ground like a bird and without breaking. This flight so nearly resembles the actual motions of birds in the field that the "clay pigeons" afford excellent practice for wing shooting, at the same time possessing in a less degree than other substitutes for game the disadvantages attending trap-shooting. An expert "clay pigeon" shot is well advanced toward being an expert wing shot in the field; and it takes a good degree of skill to make a fair score with the clay target. The Ligowsky Clay Pigeon Company, Cincinnati, Ohio, U. S. A., manufactures this excellent device.

SCHÜTZEN, welche nicht allein sich zu üben, sondern ächtes Wetschiessen mit der Flinte wünschen, werden sich leicht überzeugen, dass die Thontauben ein ausgezeichnete Vertreter für blinde Vögel ist. Dieselbe ist eine leicht erhabene Scheibe aus Thon, die man aus einem Wurfgeschoss schnell und wobei der Flug dem einer Wachtel oder eines Birkhuhns sehr ähnelt. Die Scheibe ist sehr spröde. Während der Fluges streift sie waagrecht dahin, den Winkel beobachtend, den man wünschen möge, sich sanft auf den Boden niederlassend gerade wie ein Vögel, ohne zu zerbrechen. Der Flug ist in der That derjenige der wirklichen Bewegungen der Vögel auf freiem Felde so ähnlich, dass die "Thontauben" dem Schützen ausgezeichnete Übung bieten zum Erlegen von Vögeln im Fluge und noch dazu in geringerem Grade als andere Stellvertreter für wildes Gefieder mit den Mängeln, behaftet ist, die sonst mit dergleichen Geschoss zusammenhängen. Jemand, der sich eine gewisse Gewandtheit im Schiessen nach "Thontauben" angeeignet hat, hat einen bedeutenden Schritt vorwärts gethan, um fliegende Vögel auf offenem Felde zu erlegen; dabei ist das Treffen der fliegenden Scheibe durchaus keine so leichte Sache. Diese ausgezeichnete Einrichtung verdankt man der Ligowsky Clay Pigeon Company, Cincinnati, Fabrikanten derselben.

Les chasseurs qui désireraient non seulement s'exercer au tir, mais encore arranger des concours de tireurs, se convaincront aisément que le "pigeon d'argile" se substitue admirablement aux oiseaux vivants. Le "pigeon d'argile" se compose d'un disque convexe qu'on lance dans l'espace au moyen d'une baliste construite dans ce but. Son vol ressemble beaucoup à celui de la caille ou du coq de bruyère. Le disque est très fragile. Dans son vol le disque effleure le sol ou se lèvera au-dessus du tireur à la hauteur et dans la direction qu'on désirerait lui imprimer, redescendant doucement au sol comme le ferait un oiseau et sans se casser. Ce vol ressemble tellement aux mouvements naturels des oiseaux en pleine campagne que le tir aux pigeons d'argile est un excellent exercice pour ceux qui voudraient apprendre à tirer au vol, en même temps que ces disques se prêtent beaucoup mieux que d'autres engins et projectiles au lancement au moyen d'une baliste, parcequ'ils sont exempts des désavantages inséparables de ceux-ci. Un individu qui excelle dans le tir au pigeon d'argile a déjà fait un grand pas en avant dans l'art de tirer au vol, car le tir au "pigeon d'argile" n'est nullement chose facile. S'adresser à la Ligowsky Clay Pigeon Company, Cincinnati, Ohio, E. U. d'A., fabricants de cet excellent article.

AMERICAN MAIL

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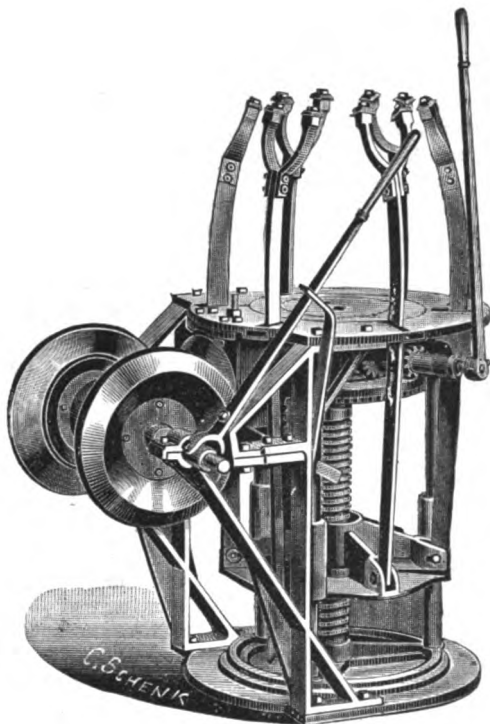
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Engineering and Machinery.

Hoop-Driving Machine.

SOME of the most unique combinations of mechanical invention are to be found in machines designed for making casks, barrels and the like, and which accomplish the purposes for which they are intended with an aptitude and celerity little short of marvelous.

The firm of E. & B. Holmes makes a specialty of the production of machines of this description. Their list, which covers devices for the elaboration of all kinds of cooper work to which machinery is practically applicable, is too extended for an enumeration of the various machines, and the reader must be satisfied with an illustration and description of one machine which will serve to convey an idea of the ingenuity displayed in all and the efficiency of each for its special line of work. The machine illustrated is intended to be used in driving thin hoops by power. This machine has been known as the "Yankee" cooper, and it is believed that it is all that such a name may imply. It is practical and is said to be perfect in operation for driving thin iron hoops that are to remain on a cask. The drivers are made to adjust themselves to the barrel, and bear upon the hoop in twelve places to prevent the hoop from bending or getting out of proper form while being driven on to the barrel as firmly as the strength of the iron in the hoop will allow. The devices for operating the drivers so as to admit and remove the cask from the machine, as well as to bring them to bear on the hoops, are such that the work is performed rapidly and well, improving the quality of the casks made and effecting a great saving to the manufacturer. The weight of this machine is 3,000 pounds; floor space required, 6 feet by 6 feet; contains 160 cubic feet; speed of friction-shaft on machine, 800; pulley on same, 12-inch diameter, 6-inch face; horse-power required, two.



MACHINE FOR DRIVING THIN HOOPS BY POWER.

Máquina de Poner Arcos.

ILUSTRAMOS una máquina que sirve para poner arcos de hierro á los bocoyes, barriles, &c. Es una de una variedad de máquinas ideadas para la fabricación de barriles manufacturadas por los Señores E. y B. Holmes. Las valiosas cualidades que posee máquinaria de esa clase que economiza obra de mano al par que acelera la fabricación, se hallan muy ingeniosamente ilustradas en las máquinas que salen del taller de esa casa fabril. En la máquina de que se trata el aparato que pone los arcos se ajusta automáticamente al barril, pesando sobre el arco en una docena de lugares diferentes con lo que se impide que el arco se tuerza ó cambie de forma mientras se ponga al barril, y tan firmemente como lo permita la resistencia del hierro del arco. Los mecanismos para hacer funcionar el aparato de poner están arreglados de tal manera que se pueda insertar el casco en la máquina ó quitarlo, á voluntad, al par que aprieten sobre los arcos

para ponerlos, funcionando rápida y eficazmente, mejorando la calidad de los cascos que se fabrican y resultando en grande economía para el fabricante.

Twist-Drill Grinder.

IN this machine the drill to be ground is held in a specially-adapted, two-jawed chuck, operated by a right and left-hand screw. The drill is held in line by a centre, which traverses an arbor parallel with the axis of the drill. An adjustable gauge, set in contact with the lip, secures uniformity. The drill-chuck is mounted on an arbor, which is connected to a slide worked by a screw. Clearance is had by eccentric

motion, different degrees of clearance being obtained by bringing the end of the drill nearer to or farther away from the centre of the motion. Lever motion rotates the drill for grinding. The slide previously mentioned is provided with a graduated gauge, which is particularly convenient in grinding a drill which has been broken in use. In this case the broken lip may be ground, the gauge position noted; then, in grinding the other lip, come up to the same gauge mark, and the lips are of equal length. A small wheel is mounted on the opposite end of the arbor, which may be used for grinding out the groove of the lips of the drill, or, if desirable, for other small work.

Fifteen-Inch Shaper.

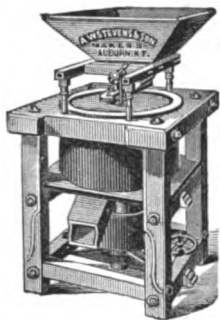
AN improved fifteen-inch shaper has a stroke of 15 inches, 15-inch cross-feed, and will plane a piece 14 inches high. It is adapted for all kinds of work done on a shaper, and is recommended for use in tool-making and die work. The reversing movement is such as to give accuracy of stroke (without crank). The length of the stroke can be instantly changed while the machine is in motion, the uniformity of cutting speed being maintained constant. The table is made in the form of a four-sided box, which secures strength and rigidity. This form also allows work to be conveniently bolted to the sides as well as on the top. The vise can also be clamped to the side, which is convenient for many kinds of work. The adjustable table is made to be adjusted to plane any desired taper by the operation of a single screw. The table can be removed when it is more convenient to fasten work on the saddle or front of the machine. The machine is made with a solid or fixed table, instead of an adjustable table, if required. A bar of $2\frac{1}{4}$ -iron can be passed under the cutter-bar for cutting key-seats and doing other work of a similar nature. The cutter-bar is driven by two rack-gears of large diameter. The driving pinion and gear are on the outside, which permits the use of a large gear, and consequent strong driving of the cutter-bar. Countershaft and necessary wrenches are included with the machine.

This machine embodies the latest improvements which have been devised for tools of this class. It is provided with a new style of vise, and the directions for setting up the machine are attached to the inside of the door at its base.

Stevens' Corn Mill.

MILLS for grinding corn cannot be called new, but the many improvements which have attended the art of milling have involved radical changes in machinery and have incited effort to perfect the means for reducing cereals to flour or meal. Maize or Indian corn, which is not properly appreciated in some countries, is yet recognized as a desirable article of food. Much depends, however, upon its reduction and treatment, and a great deal of care and attention has been given to providing the proper means for this purpose. In the illustration herewith given is shown the design of a corn mill made by A. W. Stevens & Son, in which the manufacturers have aimed to produce a first-class mill, simple in construction and strong and durable.

In this mill the frame is of the very best quality of well-seasoned material, and the stones are the finest French burr; the mill is nicely made, great care being taken in its construction, and neatly painted and varnished. The upper part of the frame to which the top stone is fastened is tenoned and pinned, besides having two strong rods or bolts running through it, thus making it strong and rigid. This, of course, is necessary in order that the upper stone may be held rigid and secure. After being carefully set and securely fastened to the frame, a coating of plaster of paris is put upon the upper stone, giving it a nice and smooth finish. The spindle is steel, has a large bearing and is placed as near the runner as possible; the step is chilled iron and nicely fitted to the bridge-tree, in which it is allowed a little liberty; it is supported by the lighter bar, and by this, in connection with the hand screw-wheel, is raised and lowered as desired. The feed is arranged so that it can be regulated to suit the operator. The hopper is large and roomy, so that an elevator is not needed and the mill does not require such close attention as if the hopper were small. The driving-pulley has a wide face and its diameter is as large as the required motion will allow. A hub with projecting ribs is firmly fastened to the runner stone, by running metal between the stone and hub. The stone is then chucked in the lathe and the hub bored true with the running face. The hub is then slotted and securely keyed to the spindle. Thus the stone is held fast to the spindle and is always true.



STEVENS' CORN MILL.

The "Toronto" Mower.

MOWING machines, thanks to American invention and enterprise, have become widely known the world over, and the demand for them is growing year by year. Purchasers naturally seek information as to the character of the machines which are offered to them, and a description of the "Toronto" mower, made by the



THE "TORONTO" MOWER.

Massey Manufacturing Company, and which is illustrated on this page, will enable the reader to judge of the features of this excellent machine.

This mower is believed to be the simplest mowing machine in use, and in appearance is symmetrical, neat and unique, uniting in its construction light weight with great strength. The usual combination of spur and bevel gearing has been entirely dispensed with by the application of a "differential gear," making the most simple driving power known. There are only two gear-wheels the size of a dinner-plate on the machine, and only one of these revolves. Hence there is less machinery to draw, less machinery to drive, and, therefore, less power is required to drive it; it is less liable to get out of order, runs freer, easier and is almost noiseless. Eleven cogs are tangent at one time, while other gears can have but two or three, thus distributing the wear over a very much larger surface and ensuring a more direct application and transmission of the power. As the cog-wheel which revolves turns at the same speed as the drive-wheels there is no power lost in driving a high speed of gear incident to all gear combinations; therefore the draft is rendered lighter. Malleable iron guards with steel plates and sections from the best steel are used. Finger-bars are of steel. The width of tread is three feet eight inches, and two to six

inches wider than most mowers. The machine takes a full swath four feet three inches wide. The machine is not drawn by the pole but by a draft-rod attached to the main frame and to a sliding device on the pole, upon which the whiffletrees ride. Hence the cutter bar is not pushed but pulled. By the location of the driver's seat the bulk of the weight is thrown on the left-hand wheel. The pole is attached to the mower at such point as to avoid side-draft, and on the axle as to leave no chance of weight on the horses' necks. The driver is located out of harm's way in rear of the cutters and has perfect control.

Its easy management and capabilities in operation are its crowning features, and are peculiar to this mower. While the machine is in or out of gear—knife running or still, the cutter-bar may be easily and instantly brought to any angle from a horizontal to a perpendicular position by the hoist-lever, without leaving the seat or stopping the team. This is said to be the only machine in the world which practically permits of this adjustment. The advantage will be readily seen. Stones, trees, stumps or any obstacle may be passed while in full motion. For rough land cutting, cutting amongst trees, &c., this mower is invaluable. A tilt-lever at the driver's right allows him to gauge the height of cut, and by the action of this and the hoist-lever the machine may be adjusted to do any kind of cutting from a tangled clover bottom, or the under-brushing of a swamp, to the trimming of a hedge. A shifter lever at the left of the seat, operated by the foot, throws the machine in and out of gear.

The advantages which this mower possesses—the unusual facility of its management, lightness of weight and draft, comfort and safety of driver, simplicity, perfect relation of all the parts, perfect pitman connections (ball and socket and adjustable to take up wear), perfection of detail—are points which will commend themselves to buyers. The Massey Manufacturing Company also makes a one-horse mower of the same pattern.

The Stevens Traction Engine.

A PORTABLE or farm engine has become one of the recognized necessities of a good agricultural country, where farming is carried on with any degree of precision, and the production of engines of this class has become a specialty with a number of manufacturers. Of the many farm engines offered, that made by A. W. Stevens & Son and illustrated in the accompanying engraving is believed to present features which will impress persons needing such machines. The frame of this engine is made in the form of a half cylinder, which is the strongest form in which iron can be put to secure strength and rigidity. Cast to the frame is the cylinder with the inner end solid. The guides or ways, steam-chest and both main bearings or pillow blocks are all cast together,



STEVENS' TRACTION ENGINE.

forming a continuous engine and frame in one piece. In securing the frame to the boiler only thirteen cap-bolts are used. Another feature gained by the construction of the frame in a trough-shape is its adaptation to catch all the oil and drippings which would otherwise drop on the boiler. At the lower end of the frame is a drip-hole, from which all oil and accumulations are carried to the ground clear of the boiler. The pillow-blocks or bearings for the crank-shaft are each eight inches in length, filled or lined with the best quality of anti-friction metal. The guides or ways are each two inches in width and are of the horizontal or locomotive pattern, the lower half being cast in the main frame, and the upper half secured to the frame by machine-screws, underneath which is put metal packing. As the wear comes upon the upper half it is easily and readily taken up. The governor is horizontal and its action is direct and instantaneous, so that a uniform speed is maintained under the most varying loads and pressure of steam.

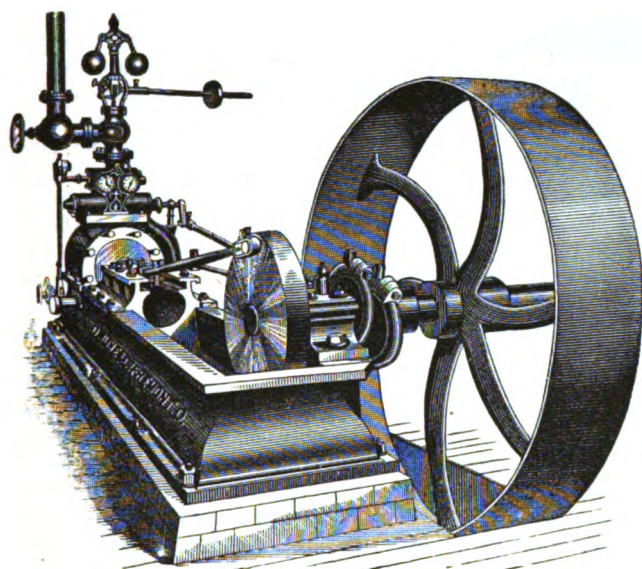
The governor is driven direct from a pulley on the crank-shaft with a flat belt. The connecting-rod is of cast steel and the cross-head is made in one piece; the piston-rod is also steel. The boiler is made of the best charcoal hammered iron. The fire-box is made from the best open-hearth fire-box steel.

The engine illustrated is a 12 horse-power traction, of great strength, simplicity, efficiency and durability. Its driving or road wheels are sixty inches in diameter, with ten-inch face. The rims are heavy cast iron and the spokes wrought iron, neither rivets, bolts nor screws entering into the construction of the wheels. The axle of the driving-wheels is steel $2\frac{1}{2}$ inches square. It passes in front of the fire-box, under the fire-door and is securely held in position by two heavy corner brackets. The countershaft, to which the road-wheel pinions are keyed, is also steel and is supported by these corner brackets, making a firm and reliable bearing, compact in form. The driving device is a straight train of spur gears. The gears all have broad faces and strong teeth. All necessary gearing is well shielded and protected

two hundred horse, with or without a variable graduating cut-off. The bed-plates are heavy and strong; the shafts are steel and the bearings are of heavy gun-metal. Each engine is furnished with a reliable governor, and is independent of and can be used with any kind of boiler, vertical or horizontal, fire-box tubular or two flues set in brick arch. The firm named makes a specialty of flouring-mill engines, with a guaranty of economy in fuel.

Improved Mining Pump.

A PUMP of novel design and construction, capable of being used for a variety of purposes, but principally adapted for pumping out mines, has lately been brought to notice. A pipe, which is bifurcated at its lower end, has a hollow ball-and-socket joint at the upper end. This end is enlarged and of a hemispherical shape, and works in connection with a hollow socket secured to a suitable bearing. From the socket, which is stationary and bolted to a proper framework, extends a pipe to conduct the water from the pump to any place de-



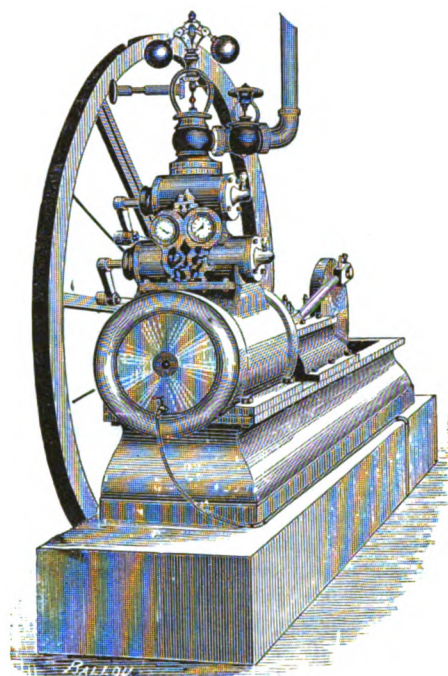
STATIONARY ENGINE, 12X20.

from sand and grit and there is no liability of injury to the person running the engine. The steering device is placed on the left side of the engine, in handy position for the engineer. Springs are placed under only the front end of the engine. Metallic springs are placed in each steering chain, so that in case one of the forward wheels strikes an obstruction the strain upon the chain, gears and steering-reel is instantly relieved and after passing the obstruction the wheels immediately resume their proper position, thereby keeping the engine in the direction it should travel. A steel coil-spring is placed in the draw-bar frame, inside of which is placed the draw-rod, so arranged that it assists greatly in starting the load, by allowing the engine to make a few revolutions before the full elasticity of the spring is taken up. An efficient brake, operated by the foot, is instantaneous in action.

The speed of the engine is 200 revolutions per minute. The band-wheel is forty-four inches in diameter, with eight-inch face. The "Hancock" inspirator is used in connection with the boiler. The front and rear throttle levers, reverse lever, steering-wheel, rod for opening and closing cylinder pet cocks, water-gauge cocks, inspirator, ash-pan door and whistle are all located in immediate range and within easy reach of the engineer.

Stationary Engines.

ON this page will be found illustrations of two stationary engines manufactured by D. June & Co. It is claimed that these engines excel in all of the requirements for purposes where great power and strength are needed and also in economy of fuel, in their simplicity and durability. Engines of this type are built in all sizes from two to



STATIONARY ENGINE, 18X24.

sired. The pump proper is located below the fixed socket-piece. The lower part of the pipe of the pump is bifurcated to form two similar curved arms, each having a similar ball-and-socket joint at its lower end. The lower end of each curved arm is enlarged, and forms about two-thirds of a hollow sphere. Within this partially rotates or oscillates the enlarged hemispherical upper end of a straight, hollow plunger provided with one or more upwardly opening valves (in practice two equal and similar valves are used). The lower end of each plunger passes into a cylinder pivoted upon supports at its lower end, so that, as the pipe vibrates, both cylinders turn on their pivots. The lower end of each cylinder is provided with two upwardly opening valves. At the upper end of each cylinder its plunger passes between rollers to make its action easy, and about midway in the cylinder the plunger reciprocates in packing to make it air-tight, causing the cylinder valves to open and close. This packing is composed of inwardly inclining leaves fixed to the cylinder and surrounding the plunger, and it is arranged in rows or tiers, the outer one of which overlies and breaks the joints of the inner one.

When the main pipe is vibrated to one side, out of the perpendicular, the plunger on that side turns on its ball-and-socket joint and is driven into its cylinder, closing the valves of the latter, the cylinder turning on its pivots to permit this motion. The opposite cylinder in the meanwhile comes into position to have its valves opened, so as to admit water into its hollow plunger. The motion that opens the valves of the cylinder causes the valves in the joint between the plunger and bifurcated arm to close. As the main pipe returns to the perpendicular the valves in the first cylinder open and those in the corresponding plunger close.

Hardware.

"Electric" Plow.

IT has been said by manufacturers of agricultural implements that in nearly every line steady progress has been made except that of plows, in which it has been thought no further improvement could be made, or invention patented, which would add strength to the plow, lighten its weight and at the same time produce astonishing results in ease of draft, steadiness of movement, perfect work in all soils—in short, all the desirable features sought in a perfect plow.

The accompanying illustration shows the design of a plow which is said to be a rare exception and far in advance of anything yet put upon the market. The weight of this plow is only sixty pounds; the beam is made from two sheets of the best sickle steel, pressed into corrugated shape and bound together by steel rivets at short intervals. The corrugations produce a double cavity in the beam, giving a certain elasticity to the beam without a particle of "set." This elasticity is something which has never been obtained in a plow and has not even been sought after. The difference here resembles that difference in action which exists between a heavy lumber wagon without springs and a light wagon. Between the sheets of steel at each end of the beam is inserted a flat piece of steel before riveting.

At the rear end of the beam is a screw adjustment, which is to be operated by the plowman without moving from his position, a wrench being attached to one of the handles for ready use. By this patented adjustment the beam can be moved one one-hundredth part of an inch, or as much more as may be desirable. The end of the beam is tapped, and a tube, on which is cut a thread fitting the tapped end of the beam, is passed through it. This tube is held between the handles by a bolt and nut. Over and attached rigidly to the tube is a hexagon-shaped nut; as the tube is turned on its rod the beam is thus moved laterally one-fourth of an inch at the rear end, equaling one inch lateral adjustment at the clevis end of the beam.

Another feature is the shape of the share and board, over which the soil moves. It will cast a furrow fifteen inches wide and ten inches deep, or as much less as is required. Each plow has as accessories a straight coulter or rolling steel coulter, with cone-shaped hub of high carbon steel and case-hardened socket, spring steel adjuster, steel reversible jointer and steel weed hook, which will bury weeds of four feet height. Two steel shares go with each plow. This tool can be seen at the Permanent Exhibition of American Goods for Export, 24 to 34 New Chambers street, New York city.

Charrue d'Acier, Modèle "Electric."

NOUS donnons sur cette page l'illustration d'une charrue qui d'après ce que l'on nous assure l'emporte de beaucoup sous le rapport de l'efficacité sur d'autres instruments aratoires de son espèce. Le poids de cette charrue n'excède pas 60 livres; la flèche se compose de deux planches de tôle d'acier gaufrée de la meilleure qualité, rivées ensemble à de courts intervalles, la forme ondulée comportant un degré d'élasticité inconnu jusqu'ici dans une charrue. Le cul de la flèche est pourvu d'une vis de rappel que le laboureur fait fonctionner à volonté sans qu'il ait à quitter sa place. Cette vis de rappel le met à même de mouvoir la flèche de la charrue un centième de pouce ou autant qu'il voudra. Il y a au surplus un petit mécanisme d'ajustement qui permet qu'on meue la flèche, latéralement un quart de pouce d'ajustement latéral au cul de la flèche, équivalant à un pouce à l'extrémité opposée. Le sillon que fait cette charrue a 15 pouces de large sur 10 pouces de profondeur, ou autant de moins que le désirera le

laboureur. Les accessoires se composent d'un coute droit ou coute tournant en acier, d'un moyeu conique d'acier trempé et douille d'acier cémenté, d'un ajustement d'acier pour ressorts, d'un joint d'acier à renversement, ainsi que d'un crochet d'acier pour arracher les mauvaises herbes, lequel enfouit des herbes de quatre pieds. Deux socs d'acier accompagnent chaque charrue. Ceux qui désireraient se convaincre des hautes qualités de cette charrue voudront bien se rendre aux Nos. 24-34 New Chambers street, à l'Exposition Permanente de Marchandises Americaine, pour l'Exportation de New York, E. U. de A.

Arado de Acero, Modelo "Electric."

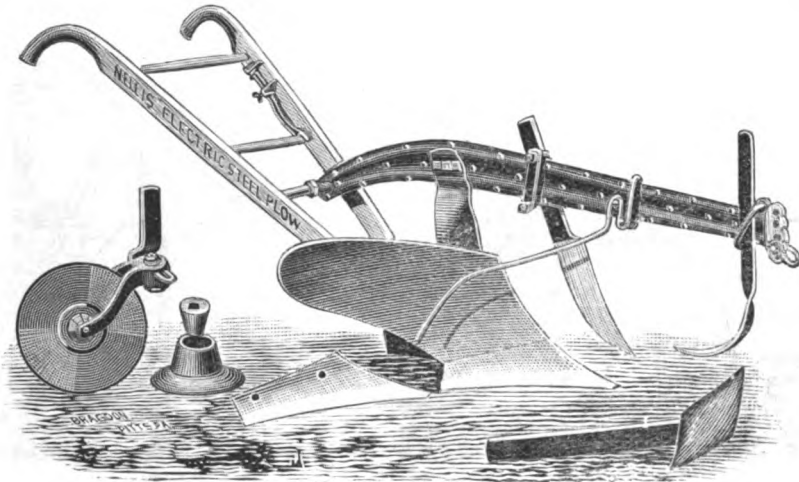
EN esta página ilustramos una especie de arado que, segun nos aseguran, es muy superior á otros instrumentos agrícolas de su clase introducidos hasta la fecha. El peso de ese arado no excede de 60 libras; el timon está hecho de dos planchas corrugadas del mejor acero, remachadas una á otra á cortos intervalos, dando la corrugacion

un estado de elasticidad hasta ahora desconocida en arados. El timon en su parte trasera está provisto de un tornillo de presion que se ajusta á la posicion que se le desee dar de un centésimo de pulgada para arriba con solo darle vuelta, sin que el arador tenga que dar un solo paso. Otro mecanismo semejante que igualmente se ajusta permite el que el timon se mueva lateralmente, equivalando un cuarto de pulgada de ajuste lateral en el extremo trasero del timon á una pulgada en la abrazadera del arado. El surco que hace mide 15 pul-

gadas de ancho y 10 pulgadas de profundidad ó tanto ménos como se desee. Las pertenencias d ese arado son una cuchilla recta ó sea cuchilla de acero giratoria, con maza cónica de acero carburado y cuenca de acero de cementacion; ajustador de acero de resorte, juntera reversible de acero y gancho de acero para las yerbas que entierra yerbas de cuatro piés de alto. Lo acompañan dos rejas. Se puede inspeccionar aquel instrumento agrícola en la Exhibicion Permanente de Mercancias Americanas para Exportacion, Nos. 24-34 New Chambers street, Nueva York, E. U. de A.

Der "Electric" Stahl Pflug.

MAN wird auf dieser Seite einen Holzschnitt finden, der einen Pflug darstellt, von welchem man behauptet, dass er der beste bis jetzt der Landwirthschaft überlieferte ist. Sein Gewicht übersteigt nicht 60 Pfund; der Balken besteht aus zwei Platten des besten gewelten Stahls, in kurzen Abständen von einander genietet. Die wellenartige Gestalt des Stahls verleiht dem Pfluge eine Elasticität, die man bisjetzt bei keinem Pfluge hat aufweisen können. Am hinteren Ende des Balkens befindet sich eine Schrauben Vorkehrung, welche der Pflüger nach Belieben stellen kann, ohne dass er nützlich hätte, seinen Platz zu verlassen. Vermöge dieser Schraube kann der Balken ein Hunderstel von einem Zolle aus seiner Lage gerückt werden oder so viel mehr wie erforderlich scheinen möge. Eine andere kleine Vorkehrung ermöglicht die Anbrinzung des Richtigmachens seitwärts am hinteren Ende des Balkens von einem Viertel Zoll, was gleichbedeutend ist mit einem Zoll am Körperende des Balkens. Die Furche, welche dieser Pflug macht, misst 15 Zoll in der Breite und 10 Zoll in der Tiefe oder so viel geringer, wie man wünschen möge. Mit diesem Pfluge verabfolgen: ein grades Voreisen or stählernes Drehmesser, eine kegelförmige Nabe von gefrischtem Stahl und Hülse von cementirtem Stahl; Richtigmachungs-Vorkehrung von Drahtstahl, umkehrbares stählernes Gelenk und Stahlhaken zum Ausrotten des Unkrauts, welcher vier Fuss hohes Unkraut unter den Boden vergräbt. Zwei stählerne Pflugscharen begleiten jeden Pflug. Man kann dieses Geräth in der Ausstellung Amerikanischer Waaren für die Ausfuhr, 24-34 New Chambers street, New York, V. St. von A. besichtigen.



NELLIS' "ELECTRIC" STEEL PLOW.

New "Green River" Screw-Plate, &c.

ILLUSTRATIONS are presented of the new Green River screw-plate and of an adjustable "Lightning" tap and reamer wrench, made by the Wiley & Russell Manufacturing Company.

This new plate is offered as an important addition to the line of tools of its class. Its quality as to material and workmanship is of the highest order, and it is remarkable for simplicity, solidity and durability. It does its work at a single cut. The die is adjustable for wear, and to make bolts and nuts fit tightly or loosely as may be desired. The principle of the die will be understood from the cuts and explanation given under.

This plate is warranted to do five times the work that can be done in the old way, and to be so much more durable than the ordinary screw-plates as to be actually cheaper. The screws cut with it are said to be far more perfect than can be made with ordinary dies, and equal to the best lathe-work, being neatly and sharply cut in the bolts, instead of being jammed out of the iron, no burr being raised above the true size. It finishes the work at one cut, notwithstanding which its operation is easier than the first trial with the common plate. With it a man can cut 1½-inch bolts without help, say threads 3 inches long, one in three minutes. Nuts and bolts threaded with it need not be matched and kept together; they always correspond. The dies, having all the strength and reliability of the solid die, are not solid, but are adjustable for wear, so as to keep the exact size of the taps, notwithstanding long use, and to allow nuts and bolts for different purposes to be made to fit together tightly or loosely as may be desired. When used up they can be replaced, the stock, collets, &c., remaining good.

One of the illustrations shows a die and guide taken out of the stock, also the same taken apart to show the mechanism. The cup-headed screw on the right holds the halves firmly together, while the size is regulated by the wedge-shaped screw on the left, the whole being clamped in the elastic stock.

The tap and reamer wrench illustrated is made in three sizes. This wrench is remarkable for its convenience, and for the great saving of taps which its use involves. It is made in the best manner, the dies being of the finest tool steel, and is light, strong, durable and elegant.

the beams are tapered recesses, to form inclined seats for bars which give a downward inclination to the forward ends of the cutters. These cutters are so arranged that their paths will slightly overlap, in order that all the grass, weeds and vines will be cut off. The depth to which the cutters enter the ground is regulated by a front gauge-wheel, which can be raised or lowered as required. Two rotary colters are attached to the outer ends of an extensible shaft, which can be adjusted to correspond with the adjustment of the side beams. To a wide V-shaped cutter are attached the ends of standards having longitudinal slots in the upper parts, to receive bolts that secure them to the side beams; the cutter can thus be arranged to work at a greater or less depth in the ground. In the upper ends of the standards

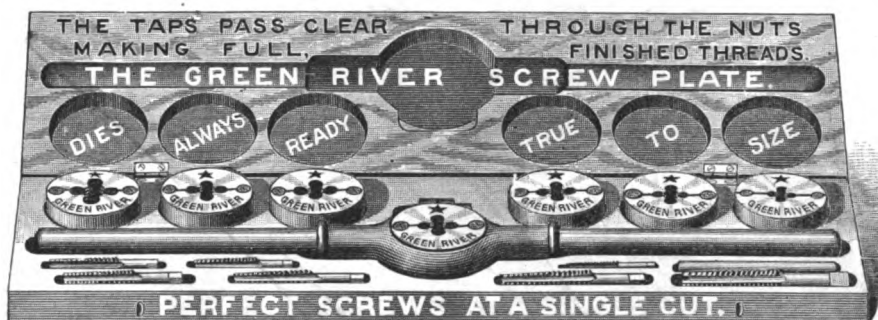


ADJUSTABLE "LIGHTNING" TAP AND REAMER WRENCH.

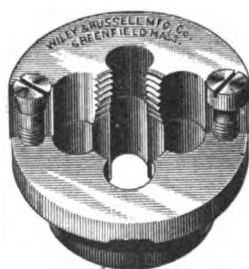
are bolts that pass through slots in braces, by which means the inclination of the cutters can be varied.

All parts of this cultivator can be worked together or, if desired, any part can be used alone.

The knives are reversible. The machine is particularly designed for cultivating strawberries, but may be used for small fruit in general, for which it is equally available.



THE NEW GREEN RIVER SCREW-PLATE.



DIE AND GUIDE.



Caster Holder.

IT is well known that furniture provided with casters has a tendency to move from position very easily, and this is frequently the case when not desirable. A neat and inexpensive device recently brought out will

as effectually prevent chairs, sofas, tables, &c., from being accidentally pushed back as if the casters were firmly locked upon their journals. The device has a flat bottom, and is surrounded upon three sides, at the top with a flange, and at the bottom there is a projection at one end to equalize the bearing of the weight and prevent it being tipped by any back pressure that may be applied to it. In order that the

caster may be easily removed from the device, in sweeping or for any other purpose, the front side is left open, only a slight rib being extended across to prevent the caster from rolling out accidentally. The bottom of the device has several spurs tapered to a point so as to readily penetrate the carpet and floor when

the weight of the furniture is applied to the top. These holders are usually made of cast iron, nickel-plated to prevent rust, and, at the same time, present a neat appearance when in position. Two holders—one under each back leg of a chair, sofa, or any other similar article of furniture—are sufficient to hold it securely in position against any ordinary back pressure.

Steel-Wire Matting.

STEEL-WIRE matting has recently come into use on steam and street car floors, as well as for door-mats, and is apparently indestructible. It consists of steel wire interwoven in a series of spirals, strengthened by a rectangular system of steel bars and heavy steel wire, and bound at the edges by a half-round steel band with the flat side against the mat. The matting so formed is about ¾ inch thick, and the wires at the surface are so shaped as to form comfortable support for the feet, while at the same time they are sufficiently open to be self-cleaning, and requiring no shaking for that purpose.

Improved One-Horse Cultivator.

IN this cultivator the front ends of the side beams are pivoted to the centre beam in such a way that their rear ends have a lateral movement. To the rear parts of the side beams are bolted the other ends of two bars, whose inner portions overlap each other and have holes through which passes the bolt that secures them to each other and to the central beam. By adjusting this bolt, the distance between the side beams may be regulated according to the distance between the rows of plants. At the acute angles of diamond-shaped cutters are secured knife standards, whose upper ends are bolted to and between two bars having outwardly projecting lugs that rest against the lower sides of the beams. The extremities of the standards pass through the beams, and have nuts screwed upon them. In the lower sides of

Architectural Sheet-Metal Ornaments.

GREAT advance has been made in the application of sheet metal to various forms of architectural work, and the use of stamped sheet-metal ornaments has increased to an extent which has made their production an independent branch of industry. It is apparent that in the hands of an artistic designer the most varied and striking forms can be produced, since the material adapts itself with almost the ease of a plastic material to any and the greatest multiplicity of forms and shapes that the ingenuity of the designer may conceive, with equal ease. For architectural uses, especially for such extensive work as cornices and the like, where bold, decorative effects are most striking, sheet iron has come into very general use, and the demand for it for such purposes is constantly increasing. In the production of works of

ment buildings. They are not only artistic in their tasks, but they have the advantage of designs and models prepared by a thoroughly-trained expert, who has studied in one of the leading art schools in Europe. They give a more animated expression to their hammered metal figures than it is thought can be attained by casting into molds. This is certainly one of the features of the success which has followed their efforts.

"Right and Left" Wrench.

A NEW "right and left" wrench has the opposite sides of the socket of the wrench formed with cams to act against a nut to lift the wrench between successive turns, thus making a tool which can be used conveniently in place of a ratchet wrench. The square



ARTISTIC GROUP IN HAMMERED SHEET METAL.

a purely artistic character the capabilities of the material are beginning to be known and appreciating. While, of course, nothing that may be produced of this nature will have, or is claimed to have, the artistic value of works in bronze or marble, the material is, nevertheless, capable, in skillful hands, of producing objects of vastly greater artistic merit than many critical persons who have never seen them would be willing to acknowledge.

As an illustration of this, an engraving of a group made in sheet metal is given. This group was made by Bakewell & Mullins from a photograph of one of the four corner figures on the "Albert Memorial" building in London—"Europe, Asia, Africa and America." This group was ordered for the World's Exhibition at New Orleans and was placed directly over the main entrance of the exhibition building, where it attracted a great deal of attention.

The firm of Bakewell & Mullins is composed of enterprising men, who have achieved high reputation for artistic and effective productions in sheet metal, their designs being utilized in a number of promi-

corners or faces which abut against the nut to turn it in one direction are adapted for making a right-hand turn on one side of the tool, while the other side has these square corners adapted for making a left-hand turn, the withdrawing or backward movement of the wrench being in each case aided by the cams at the corners of the socket adjacent to each angular face that bites on the nut. With this wrench it is only required to move the hand back and forth, as the cams lift the wrench to the top of the nut upon the back stroke, and gravity causes it to drop again over the nut.

AMONG the new tools lately introduced is a blind-nailing plane which has a shuttle operated by a hand lever and carrying a narrow knife made to project slightly through a longitudinal groove in the body of the plane. In practice this knife strikes against and cuts beneath the surface of the wood in such way that the shaving will not be crumpled or narrowed, and will entirely fill up the cut when put on again over the driven nail.

The "Brilliant" Lantern.

AN illustration is given of the "Brilliant" coal-oil lantern, which was placed on the market some years ago. The "Brilliant" has been sent to about every quarter of the globe, and the first complaint has yet to be made of its failing to give satisfaction.

The striking feature of this lantern consists of the unusually large openings for the admission of air or oxygen to the flame, and the equally large exits for the heated air. Patentees and manufacturers had persistently labored in this direction, but so delicate is a coal-oil flame and so difficult to control in a lantern that the advancement made had been slow and unsatisfactory. In the "Brilliant" these



THE "BRILLIANT" LANTERN.

large air-openings are neutralized in storms of wind by the exact shape and peculiar construction of the flanges and chambers over and through which all air passes to the flame. The old mistake has been avoided of shutting up the flame and keeping from it all air but such as has been greatly heated by being conducted through long passages. A large volume of air is admitted directly within the globe or flame chamber, while another equally large and counterbalancing current reaches the interior of the cone, thereby securing perfect combustion and safety of the flame from sudden or violent attacks of wind. The interior air-chambers surmounting the oil-reservoir keep the latter cool. The device is simple and at once effective.

The "Brilliant" lantern may be filled, trimmed and lighted without removing the globe. The seap or drip around the base of the burner all collects in one of the air-chambers, thereby preserving the exterior of the lantern from the usual offensive oiliness.

A new cartridge loader has been brought out. The instrument is set upon a base-plate, and consists of a standard with slotted upper end to receive the end of a lever arm, a plunger being connected to the lever, and the machine having a number of these plungers, varying in size to fit within shells of different calibres.

The "Hamilton" Fruit Jar.

AN illustration is given of an improved jar for holding preserved fruits. In the construction of this jar three essential requirements are met: It has a perfect "sealer," which can be easily adjusted; there is a device for showing whether the jar is properly sealed, and the method of moving the lid is easy. The jar is made in a substantial manner of flint glass, in three sizes—viz., pint, quart and half-gallon. The trimmings of each size are interchangeable. The lid has an air-vent and the clamp a rubber valve attached, for the purpose of securely closing the perforation in the lid; the jar and lid being made of glass prevent liability of the contents being spoiled by coming in contact with metal. The jar can be easily opened and closed without wrench or knife, or loss of time, and can, it is asserted, be depended upon to preserve its contents. It is claimed that this jar only needs to be seen to be appreciated, and that it is, in point of merit, the equal of, if not superior to, any heretofore manufactured. Jars of this kind are packed with the trimmings on, as shown in the cut.

Improved Socket Wrench

IT is well known that of special tools there are none of much more value to the mechanic than a good socket wrench. There are many situations in which nuts and bolts are placed that cannot be reached by any other form of wrench, and it therefore becomes necessary to have a number of different sizes, when they are made in the ordinary form, in order to fit the various sizes of nuts or bolt-heads that are in common use. A universal socket wrench which has been recently brought out is very simple and compact, and can be adjusted to fit and securely hold such a variety of nuts that it is acknowledged by experts to be an invention of unusual merit.

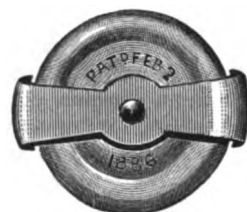
The device is a tapered hollow socket, arranged to receive a number of levers which project and act in unison to receive the nut, there being four or more levers to suit the requirements. The levers are recessed at their base to receive a binding-ring, and are also grooved to receive an elastic packing of rubber for the purpose of holding their outer ends in an expanded position when removed from the nut.

In the bottom of the socket is a spiral spring that bears against the bases of the levers for the purpose of holding them in an outward position relative to the socket. At the outward end of the socket are dividing walls, of a wedge shape, to assist in opening the levers when pressure is removed from the spring.

These division walls are also designed and adapted to resist the strain upon the levers when the wrench is rotated upon the nuts. The operation of the device is as follows:

The outer ends of any of the levers are engaged upon the nut, and pressure is applied upon the bit stock, in consequence of which the levers will be suitably retracted in the socket until they firmly bind upon the nut.

In this manner they may be engaged upon nuts of various sizes, the only adjustment necessary being the application of different degrees of pressure, as the levers will thus be retracted more or less to fit the nuts of various dimensions. The spring at the base of the levers will throw them forward when the pressure is relaxed by removing the device from the nut or bolt-head.



THE "HAMILTON" FRUIT JAR.

Metals and Mining.

Coal in the Temescal Mountains.

A **S**PLENDID vein of coal was discovered in the Temescal Mountains about five or six months ago by H. A. Bradley. A shaft has been sunk on the vein (which pitches at an angle of about 45°) to a depth of about forty or fifty feet, which presents a fine vein of merchantable soft coal about twelve to sixteen inches in thickness, with plenty of promising sand-rock in the foot-wall and a ceiling of shale, which, in our opinion, is heavily charged with petroleum, as a small piece will burn a steady light for fully half an hour. This valuable mine is located about seventeen miles from Riverside, and within plain sight of Arlington avenue. A surveyed line of railroad runs within about one and one-half to two miles of the mine, and it is fully expected that the road will be in full running order inside of four or five months. —*San Jacinto Register.*

Gold and Silver Production in 1885.

DR. JAMES P. KIMBALL, the Director of the Mint, has submitted to Congress his report on the production of gold and silver in the United States during the calendar year 1885.

The production of gold shows an increase of \$1,000,000 over the estimate for the calendar year 1884, and that of silver, calculated at the coining rate in silver dollars, shows an increase of \$2,800,000 over 1884:

State or Territory.	1885.		1884.	
	Gold.	Silver.	Gold.	Silver.
Alaska.....	\$300,000	\$2,000	\$200,000	.....
Arizona.....	880,000	3,800,000	930,000	\$4,500,000
California.....	12,700,000	2,500,000	13,600,000	3,000,000
Colorado.....	4,200,000	15,800,000	4,250,000	16,000,000
Dakota.....	3,200,000	100,000	3,300,000	150,000
Georgia.....	136,000	.....	137,000	.....
Idaho.....	1,800,000	3,500,000	1,250,000	2,720,000
Montana.....	3,300,000	10,060,000	2,170,000	7,000,000
Nevada.....	3,100,000	6,000,000	3,500,000	5,600,000
New Mexico.....	800,000	3,000,000	300,000	3,000,000
North Carolina.....	152,000	3,000	15,000	3,500
Oregon.....	800,000	10,000	660,000	20,000
South Carolina.....	43,000	.....	57,000	500
Utah.....	180,000	6,750,000	120,000	6,800,000
Washington.....	120,000	70,000	85,000	1,000
Texas, Alabama, Tennessee, Virginia, Vermont, Michi- gan and Wyoming.....	90,000	5,000	84,000	5,000
Totals.....	\$31,801,000	\$51,600,000	\$30,800,000	\$48,800,000
Grand totals.....	1885. \$83,401,000		1884. \$79,600,000	

From this table it is seen that Montana shows the greatest increase, more than \$4,000,000, and Idaho has followed with an increase of \$1,300,000. Both these territories promise well for the future. California has fallen off nearly 1½ millions. Colorado, Nevada, Utah, New Mexico and Dakota hold their own. It is somewhat surprising how small Alaska's gold output is, notwithstanding the richness described by Governor Swineford and the rumored large output of the Tredwell mill.

Coinage: Gold, \$27,773,012; silver, \$28,962,176, of which the silver dollars coined were \$28,697,767. In addition to the coinage, gold and silver bars of the value of \$27,490,095 were manufactured by the mints and assay offices during the year:

Imports.....	gold. \$23,645,311	Silver. \$17,772,718
Exports.....	11,417,207	33,280,542

Excess of..... Imports. \$12,228,104 Exports. \$15,507,824

The report contains an elaborate review of the coin circulation of the United States. Some errors in earlier estimates have been corrected. A deduction from the stock of gold coin of \$15,669,981 is made for bullion in the Treasury, July 1, 1873, heretofore included as coin, and for an error in exports of gold coin, as reported for 1874, \$4,654,714, a total of \$20,324,695. This, with the \$30,000,000 deducted in his annual fiscal report, makes a total deduction of \$50,324,695 from the estimates by his predecessor of the stock of gold coin in the United States.

The director estimates the amount of gold coin in the United States on January 1, 1886, to have been \$533,485,453; of silver dollars, \$218,259,761; subsidiary silver, \$75,034,111; or a total stock of coin, \$826,779,325.

Of the stock of gold coin the United States Treasury held, over and above outstanding gold certificates, \$75,434,379, and the national banks, \$156,353,592, including Treasury and clearing-house certificates. One thousand and fifteen State banks and trust companies held

November 1, 1885, \$31,255,789, which left in the hands of the people and other banks, \$270,441,693.

Of the silver dollars that have been coined, the United States Treasury owns (not represented by silver certificates) \$72,538,725; the national banks, \$6,940,628.

The amount owned by private individuals and other banks (including those in the Treasury represented by certificates outstanding) was \$138,780,408.

Of the subsidiary silver, about \$27,000,000 was in the Treasury and \$47,000,000 outstanding.

The director reviews the estimates of coin circulation by various private and public writers, and adduces facts and figures in support of the correctness of his own estimates.

The report also contains valuable statistics in regard to the consumption of the precious metals. Circulars were sent to about 8,000 individuals and firms whose business led him to suppose that they were consumers of gold and silver in the industrial arts. Responses were received from 4,372 firms, of which 2,700 proved to be consumers. The value of the gold used by the 2,700 firms during the calendar year 1885 was reported as follows, namely, \$10,837,944, against \$14,500,000 reported by about the same number of firms to the Director of the Mint in 1884. Of this amount, about \$2,800,000 consisted of United States coin and about \$6,000,000 of stamped United States bars. The foreign coin used amounted to \$178,000 and old jewelry to \$819,000, leaving only \$467,000 of native grains and \$559,000 of wire and rolled plate.

The silver consumption reported by the same firms was \$3,470,000, of which \$124,910 consisted of United States coin, \$2,773,975 of United States refinery bars, \$40,000 of foreign coin and \$219,000 of old jewelry, plate, &c., leaving only \$94,000 of native grains and about \$217,000 of wire and rolled plate.

The result of this inquiry leads to the conclusion either that the consumption of gold and silver in the industrial arts has fallen off since 1883, or that there is less duplication in the returns than heretofore as between original and secondary manufactures.—*Engineering and Mining Journal.*

California Quicksilver Ores.

CALIFORNIA is the only State in the Union where quicksilver ores are found and mined. Here the only quicksilver ore of great importance is cinnabar, although metacinnabarite, the black sulphide, is rather abundant in a few mines, and metallic quicksilver sometimes accompanies the deposits of its compounds. The metacinnabarite described by Dr. G. E. Moore was amorphous, but according to Mr. Goodyear it also occurs as minute crystals. Cinnabar is found in a great number of localities in the Coast ranges for 100 or 150 miles north and south of San Francisco, always, so far as known, in metamorphic rocks of cretaceous age. Dr. Geo. F. Becker, in his geological sketch of the Pacific Division, in the census reports, states that the metamorphism is generally peculiar, and the so-called quicksilver rock is readily recognizable. It is a silicified chert-like material often reddened by iron-oxide, and usually accompanied by serpentine or serpentinite matter. In almost all cases pyrite or marcasite and bituminous matter accompany the cinnabar, and mispickel and copper pyrite are reported in a few instances. At Sulphur Banks, on Clear Lake, native sulphur occurs in quantities with the quicksilver ore, and native gold has been found on water-worn masses of cinnabar not far from the same locality. The usual gangue minerals are quartz, calcite and magnesite.

Cinnabar does not occur in well-marked veins, but generally in irregular bodies distributed through the rock. In the New Almaden mine, which has been more extensively worked than any other in the State, these bodies appear to lie on a curved surface, indicating a geometrical relation between the position of the several ore bodies, though an obscure one. At this mine the masses of ore are usually connected by tiny seams of the same material. There is a strong similarity between this mode of occurrence and that of many lead ore deposits in limestone, and it may be, Dr. Becker thinks, that their true character is the same.

The quicksilver country north of San Francisco is a volcanic region, while to the south volcanic rocks are subordinate in some localities and wanting in others. To the south, too, there is no indication of

recent deposition of the ore, while to the north deposition is still actually in progress. No general inference to the genesis or age of the deposits can therefore be drawn without fuller investigation (which is now going on under the direction of Dr. Becker, of the U. S. Geological Survey), while the great similarity in the association of minerals suggests a similar origin for most of them.—*Mining Press*.

Quartzite Deposits.

IN an article on quartzite deposits at Red Cliff, the *Denver Tribune-Republican* says: As described in previous letters, the quartzite on shoots occurs in trough-like cavities which are denuded of ore as work progresses, so that few, if any, reserves of ore are left standing in the mines. In judging these mines many new features must be taken into consideration, such as continuance of ore, cheaply mined, evidences of which must be had from shipment records rather than from ore in sight. Such records are to be looked for and found in claim after claim developed along the entire belt, as now opened. In the quartzite impecunious miners have suddenly acquired good bank accounts, because pay has generally rewarded their efforts near the point where work was begun and before debts were possible, and all subsequent expenditure provided for in advance, by the richness of the ore already mined. Such mining as this is rare, especially in view of the many instances in which one man's experience of luck has been identical with so many others. It is also a fact that there has thus far been no boom, although the foundation for one upon merit has never been greater, if we consider the amount of money realized as profit over expenditure, the rapidity of shipments after discovery, and the scope of country seamed by the mineral-bearing quartzite. But the quartzite mines are not the main source of mineral wealth. The carbonate deposits in the lime have for several years ranked Red Cliff second to Leadville in the field of desirable smelting ores, and that supremacy is liable to continue indefinitely. Some of the old producers, such as the Belden and Eagle Bird group, have been abandoned on account of company difficulties, and the erroneous notion that when the sulphide zone was reached the further search for pay mineral should be abandoned. The Black Iron mine has put this theory to rout and demonstrated that good ore and of a carbonate variety, too, may be found beyond the sulphide barrier, and it is quite probable that these properties may again be started up. The Iron Mask mine is a finely developed property, with massive mineral reserves blocked out and a daily output of 80 to 100 tons from exploit work alone. The placement of a heavier plant of machinery has retarded shipments for a short time. These two mines, the Black Iron and Iron Mask, show the greatest depth into the mountain—1200 feet—and the heaviest ore reserves. New discoveries are of common occurrence, and the present year will advance Eagle county to a higher standing in the list of producing counties than she has hitherto attained.

American Color Deposits.

UNTIL within the period when the manufacture of paints in any considerable scale became general in this country, manufacturers naturally looked to foreign parts for all fine natural grinding pigments. Umbers, ochres, siennas and browns suitable for the nice purposes of the grinder (that is, colors possessing body, brilliancy and strength) have necessarily been imported, owing to the fact that this country had not, with all its immense resources of mineral wealth, produced them. The colors we have sought for on our soil were ochres to take the place of the French siennas of sufficient depth of color, brilliancy, of undertone and transparency, to permit of their use profitably and satisfactorily in place of the siennas from Sienna, Italy; or umbers equal to Turkish, the finest of which is still found in the island of Cyprus. This constant looking abroad for these articles has fostered such a prejudice in their favor that, taken with the undesirably poor quality of slightly similar substances found in abundance at home, everything American in the color line has been viewed with distrust and found bad almost before gaining an impartial examination from men who ought to have been the first to discover and announce their merit. For some years past samples of American colors of great natural brilliancy have been brought into the large houses, by farmers from New York, Pennsylvania, New Jersey and the West, but in almost every instance the deposits have proved upon scientific examination to be worthless, owing to their being simply

pockets, or else the color in the mass has been so inextricably commingled with foreign substances of a like specific gravity, that the washing or floating out of the color sought for has been commercially impracticable.

Travelers from the far West have seen and brought back samples of remarkable reds and yellows, but the positions of the deposits and their remoteness from railroads has been such as to make them inaccessible for years to come. It has not been until within the past ten years that any of the natural colors we have spoken of have been found in this country in sufficient abundance and purity and of the right color, strength and staining qualities, to make any serious inroads upon the prestige long held by foreign pigments. Now, however, American ochres of the finest quality are being mined and manufactured, and are coming into use; and are taking the place of the finest French article. This is also the case of American sienna, which in strength and color compares with the pigments of Italy. As yet we know of nothing in the umber line which approaches the Turkish, but the time is not so far distant when this country will depend but little upon foreign soil to supply it with all the natural pigments which are still being so largely imported. The trade prejudice is now dying out in the case of the ochres and siennas, and ere many years the United States will be in the same relative position, with regard to natural pigments, that she now is to most other of her productions—of being able if necessary to supply the world.—*Chicago Paint Review*.

"Promoting" Mines.

FOREIGNERS who purchase mines in this country generally pay a great deal more for them than they are worth; and, failing to pay good interest on the investment, the mines themselves are held to blame. With very few exceptions the American mines "floated" on the English market have been put there at exorbitant figures, though the people at this end get only a small proportion of the money. A mine bought here for \$50,000 is placed on the market there for \$250,000 or \$300,000, or even a greater advance. The difference in original cost and selling price goes into the pockets of the "promoters." A delusive prospectus is issued, calculated to inveigle people of small means to buy in hope of getting large returns from small investments.

A case of this kind has just come to notice, where certain Colorado mines in Gilpin County are being put on the London market. The company is known as the Sapphire, and was organized to purchase the Frontenac and Searle mines, in Elkhorn Gulch. The capital is £130,000 and £20,000 debentures. The prospectus states that £125,000 in cash and debentures is to be paid for the mines. The Colorado papers are showing up the scheme in rather an unpleasant light for the promoters, for they do not think the mines worth any such price.

The *Denver Tribune-Republican*, in speaking of the prospectus, says: "The fact of the matter is that the prospectus was written by an ignoramus, or with the intent to deceive. In either event it is an injury to Colorado, and should be condemned by Colorado miners. Great Britain is in the right spirit to purchase a great many American mines just now, but the spirit will not last long if the investing public is to be treated with allopathic doses of nonsensical falsehoods, or catches a few small mines at prices enormously greater than their actual value. It is plain to be seen that financial circles are everywhere getting something of a mining fever. It is too much to expect that there will be any failure on the part of ignorant pretense and swindling dishonesty to grasp the opportunity; but it is not too much to expect that honesty will sit down as solidly as possible on them at every opportunity."

The Idaho Springs *News* speaks of the mines in question as follows: "The two mines are excellent pieces of properties, and have been producing considerable ore under the leasing system, which has paid well. But they are certainly not worth the outrageous price asked. Years ago they belonged to an English company and were worked under Mr. W. W. Ramage's management, but those times being high-priced times, the properties did not yield satisfactory returns."

Occasionally the English investors are warned in this manner, but as a general thing the mischief is done abroad before the people who buy are well informed by disinterested parties. There are good mines to be had for moderate prices, but there seems no way to get rid of the objectionable middle-men under the present system of mine bonding and buying.—*Mining Press*.

Fancy Goods, Stationery & Paper

Cuff-Fastener.

THE cuff-holder, or fastener, illustrated is intended to overcome the difficulty of attaching cuffs to wrist-bands. Much time and patience are sometimes exhausted in working a stiff-laundried cuff over a sleeve-button, and this device is intended to give that peace of mind and afford that facility for fastening the cuff which will relieve the masculine mind of a great deal of concern for the future state of existence. In operation the hook D is slipped through the button-holes of the cuff from below, as at C, which is more easily done before putting the cuff-button on the cuff; the cuff is then slipped over the hand and over the wrist-band of the sleeve until it reaches the sleeve-button. The ends A are then pressed together until the fastener is sufficiently spread to slip over the sleeve-button, as shown by dotted lines; the ends A are then released and the fastener will securely clasp the shank of the button. To remove the cuff, the ends A are pressed together sufficiently to slip over the button.

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The "Victor" File.

ON this page will be found an illustration of the "Victor" file recently put upon the market by the Globe Files Company. It is claimed that this file performs all of the functions of a double-arch file and is simpler in operation. The file is handsomely gotten up and is very attractive in appearance, each file being mounted on solid walnut board and the metal parts nickel-

be raised, the sheet of paper drawn up and the writing restarted, as at the top of the sheet. This is a feature which is said to be peculiar to this tablet alone.

Double Transfer File.

THE "W. H. W." double transfer file, of which an illustration is given, is made with a gilt base and nickeled arches on a walnut board. With this file, by pressing down one or both of the thumb-pieces, one or both of the arched wires may be raised at the option of the operator, thus making it either a double or single file. To close the file with one motion the palm of the hand is placed against the back of the arches, which are moved forward.

There is no delicate machinery to get out of order, but the file is a plain, simple and effective instrument. This file is made in three sizes, of well-seasoned materials, with unusually strong springs, which will not become weak.

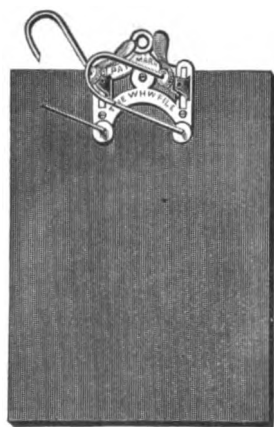
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Elastic Carpet-Lining.

A NEW method of making an elastic paper or felting for carpet-lining consists in the combination of certain waste products. The material which composes the carpet-lining is corn-cob in combination with raw paper stocks, known in the trade as "colors" or "satinetts," or the waste of carpet and woolen mills, known as "shoddy," or any common paper stock may be used with the corn-cob. The cob is ground in any suitable mill, to about the fineness of wheat-bran, care being taken not to reduce it too fine for elasticity. It is then passed through sieves of the proper size, by which the imperfectly-ground portions of the cob and other useless substances are removed. The ground corn-



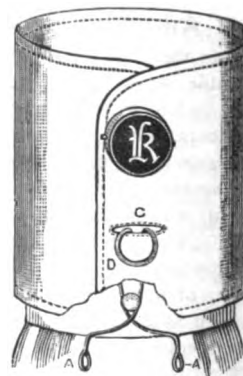
THE "VICTOR" FILE.



"W. H. W." DOUBLE TRANSFER FILE.



"EXCELSIOR" TABLET.



CUFF-FASTENER.

plated and bronzed. Every file is provided with a perforator and board-cover without extra charge.

"Excelsior" Tablet.

ONE of the most recent introductions in the tablet line is illustrated by the cut of the "Excelsior" desk or lap tablet, which is given on this page. The tablet comes in four sizes, with walnut levers, the three smallest sizes provided with blotting-paper. This tablet is so made that, after writing the page partly down, the lever at the top can

be raised, the sheet of paper drawn up and the writing restarted, as at the top of the sheet. This is a feature which is said to be peculiar to this tablet alone.

This is said to produce a carpet-lining of a very elastic nature, whereby the wear or use of carpets may be very largely increased, and better and cheaper than any hitherto used. It is also said to be an excellent material for packing glassware.

"Spinning-Wheel" Inkstand.

ONE of the novelties in the fall line of metal goods is the inkstand which is illustrated on this page. It consists of a bronze stand, at the back of which is a brass spinning-wheel, in front of which is a small bronze dog. On one side is a fine cut-glass ink-bottle, with cover, while the front of the stand is a rack for pens. The stand is substantially made, and is both ornamental and useful.

"Perfection" Slate-Cleaner.

THE ingenious as well as useful article known as the "Perfection" slate-cleaner is constructed with a central receptacle for holding water to keep the felt cylinder which is at one end moist, this cylinder being used in removing pencil marks. At the other end is a rubber for drying or scraping the moisture from the slate, whereby the surface is made ready for immediate use. The water receptacle will not require refilling for several days. This cleaner accomplishes its purpose perfectly. This little instrument can also be utilized for sealing the flaps of envelopes, by drawing the end containing the moist felt over the gum and then pressing the flap down in contact with the envelope by means of the rubber. For this use it is as effective as in its first-mentioned capacity. The cleaner is neat in appearance, is well made and low-priced.

Paper-Holder.

A NEAT and efficient device for holding paper, bills, letters, &c., which has recently been brought out, is composed of wire, and is of such a construction that the entire device can be made by machinery at a very low cost, thus placing it within the bounds of all classes of trade. There are two frames, each made of only one piece of wire. These frames are hinged together to make a clamp of a form and size to adapt it to holding papers, &c., of the ordinary kind. The two frames are connected together crosswise by means of wires, and to them are attached the coiled springs that operate the clamp. To place a paper, bill or letter in the holder, one hand grasps the hinged frame and it is opened. After the article is inserted between the frames and the hold of the hand released, the device will automatically close and clamp the article by the action of the springs.

A LATELY patented novelty is a ready paged pad or tablet, each sheet being numbered so that the trouble of paging manuscript and the risk of confusing the sheets is avoided.

Book and Music Holder.

A BOOK and music holder of recent introduction consists of two back-pieces, one provided with undercut slats and the other having beveled edge strips that have a sliding engagement with the slats.

There are also two end-pieces. One of these is fixed to the end of the back-piece first mentioned and is provided with a leaf-holder. The other end-piece, hinged at one end of the other back-piece, is provided with one or more leaf-holders. A base strip, in two parts, is fixed at the lower edge of the back parts and projects at right angles. In use, the book or music is placed on the holder under the left-hand spring, having previously raised the right-hand hinge-piece. Then the hinge-piece is thrown forward against the face of the book or music, and when placed correctly the brass loops will come aside of the printed matter and not obstruct the reading. The leaves can then be turned readily with little practice without removing them from the holder. While the improvement was originally intended more particularly for school and household

use, it is also adapted for employment in offices. It can be adjusted to hold books of various sizes. The book can lay flat or be stood upright, and is held open in any desired position for use.

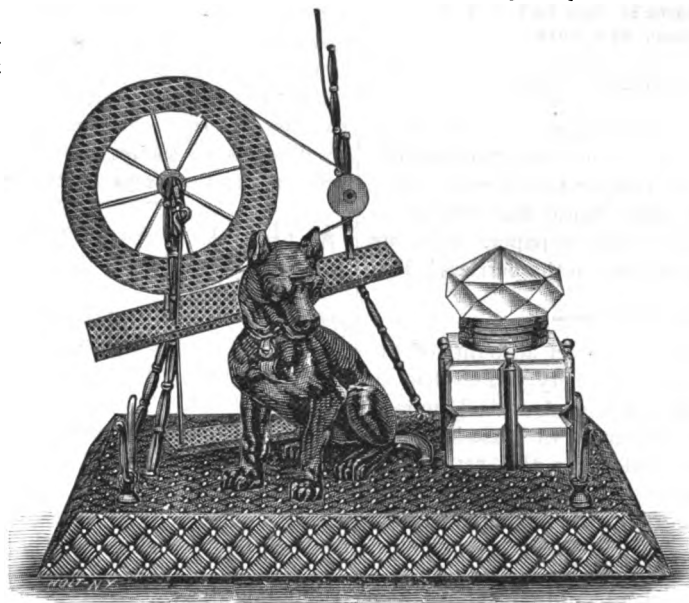
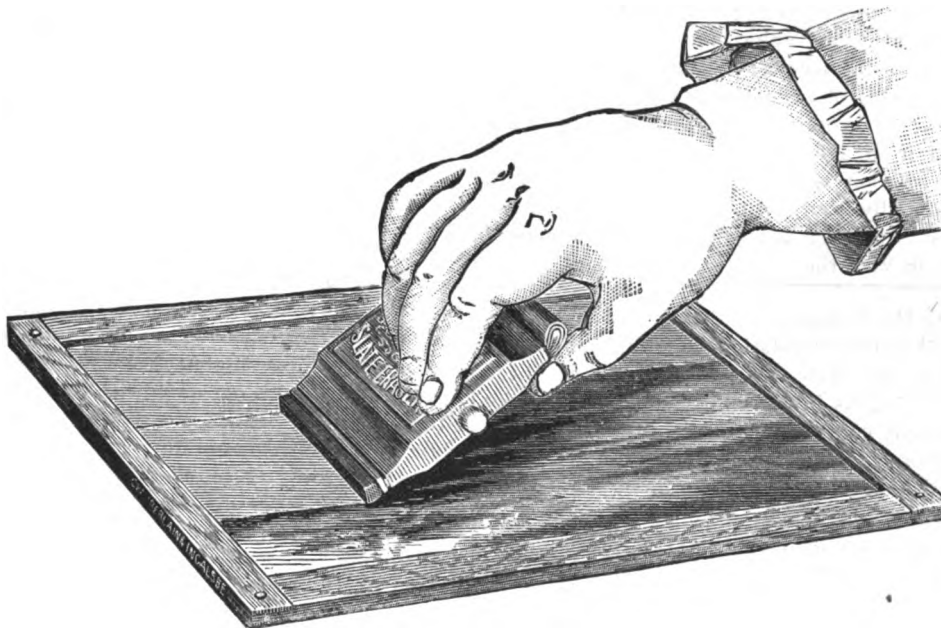
Combined Entry and Blotter Sheet.

A NOVEL entry and blotter sheet for hotel register, account or other entry book in which the entries are written in ink, consists in a leaf or series of leaves, each composed of a single integral sheet of sized or otherwise prepared paper, suitable for writing purposes,

having connected therewith two separate absorbent or blotter sheets, which are equal in size, when taken together, to the writing-sheet, one of the blotters being united to the sheet on one side or surface, and the other on the opposite surface, the arrangement being alternate relatively to the writing-sheet—that is to say, one part of the blotter being applied to the lower left-hand portion of the extended writing-sheet and the other part of the blotter to the right-hand upper surface, or vice versa, whereby the sheet may be folded

in the middle and in either direction, and always bring a writing surface against a blotter or absorbent surface. The blotters are united to the writing-sheet by cement or otherwise to constitute a single leaf composed of the two materials.

A NOVEL and cheap pocket postal-scale just invented can be adapted to use as an advertising device for business houses.

**"SPINNING-WHEEL" INKSTAND.****"PERFECTION" SLATE-CLEANER.**

The American Mail & Export Journal

Publication Office : 126 and 128 Duane St., New York, U. S. A.
Cable Address, *Catchow, New York.*

• NEW YORK, AUGUST, 1886.

THE iron industry of Germany is suffering greatly from English competition, which is said to be destructive to German interests. This is a return for competition in other lines. Not long ago the whole British paper trade was crying out against the imports and low prices of German paper. Why not stay competition in either case by setting up the barriers? Prevention will be easier than cure.

CONSUL-GENERAL JUSSEN gives a brief account of the formation of an Austrian export society, which has in view the extension of the export trade of Austria-Hungary. This organization proposes to create depots of Austrian manufactures in foreign trade-centres, and it has also established an "export sample depot" in Vienna. The Austrians evidently do not propose to lag behind in the world's competition for trade.

CHINESE conservatism has received another shock. It is well known that the people of the Flowery Kingdom have heretofore made little advance in developing the mineral wealth of their country; but now a system of licenses has been established under which any Chinaman can open and work mines. Consul Withers thinks that this is a noteworthy indication of progress, and that the day is not far distant when the mineral resources of China will be developed and a demand for improved mining machinery, skilled engineers, &c., will arise.

REPORTS of the mining registrars on the goldfields of Victoria, for the quarter ended March 31, have been received through the courtesy of the colonial government. These reports are accompanied by topographic and detail maps, and give an account of new discoveries of auriferous quartz of extraordinary richness. One of the peculiar incidents of these gold discoveries is that an average of 104 ounces of gold per ton has been derived from a mine which was unsuccessfully offered in the London market two years ago. British mining speculation has undoubtedly been blunted by past experiences, but it is possible that it may be revived under the stimulus of discoveries like those in Victoria.

SINCE we last wrote the Congress of the United States has adjourned, and all further legislation affecting our foreign relations, commercial or otherwise, has been deferred until the "short session" which begins in December, unless exigencies should arise which might compel the President to again call the two Houses together. All legislation on the subject of the tariff has failed, and although it will be again brought up there is a very limited chance of any change being made in our customs laws during the existence of the present Congress. Should such legislation fail therefore, the next Congress may be called upon to deal with it; but indications point to a very different constitution of the House of Representatives, and a more decided opposition to anything tending to favor free trade.

REPLYING to an inquiry from the Consul-General at Kanagawa as to the reasons for the discrepancy between the import and export trade of Japan and the United States, J. Otis Averill, Jr., among other things, remarks: "The only outside pressure brought to bear in promoting the commerce of other nations, so far as I know, is in the shape of mail subsidies to

the steamship lines, which perhaps enable them to take freights at less rates than otherwise, and the personal solicitation of the representatives of the various nations for contracts for government supplies, &c., which I think influences the demand for other articles somewhat toward the source from which the government obtains its supplies." This support of steamship lines by liberal payment for mail service does not commend itself to our government, which prefers to economize at the expense of our commerce. Diplomatic pressure is also resorted to, it seems, to secure trade. Is diplomacy in trade extension prohibited to our representatives in foreign countries?

A VERY clear exposition of the position of the advocates of protection to domestic industry was made by the Hon. Wm. D. Kelley, of Pennsylvania, in the House of Representatives, on the bill to reduce tariff taxes and to modify the laws in relation to the collection of revenue. Presenting forcibly the arguments which induce the representatives of the principle of the support of American industry as against the manufacturing interests of other countries to cling tenaciously to that system under which every American industry has attained strength and importance, Mr. Kelley exposed the disingenuousness of the free-traders who refuse to abolish the tariff on raw material not indigenous to this country, and then point to such taxation as the practical and legitimate outcome of protective principles. Mr. Kelley's speech is a broad and comprehensive review of our system of taxation as it relates both to imported and domestic commodities, and it shows in clear light the weak and shadowy foundation upon which the advocates of free trade or a tariff for revenue only seek to subvert our industrial influence.

ONE of the English journals announces that "practical effect will probably soon be given to a plan which was long since acknowledged to be useful—in theory—by the establishment of a commercial museum either in London or one or other of the large manufacturing centres of the kingdom." It has become evident that the formation of exhibitions of the manufactured products of different countries has become essential for helping to develop the commerce of such countries. Germany has taken the lead in enterprises of this nature, and besides establishing museums at her different industrial centres has equipped a floating exhibition, which is being taken around the world. Belgium is making progress in the same direction as Germany, and all of the other European countries have developed more or less energy of a similar character. The fact that these museums are potent in their influence on trade must be well assured now that the British merchants and manufacturers are moving in the same direction. In our own country the suggestion is not new, but the efforts to perpetuate to some extent the exhibition of 1876 at Philadelphia and the later one at New Orleans did not meet with the success which the propositions merited. It has been reserved for private enterprise to make a substantial beginning in this direction, and there is now located in the city of New York a permanent exhibition of American goods for export which has attained a success that seems to justify its existence. Perhaps no period has ever witnessed such a struggle for industrial and commercial supremacy as this, in which it is sought to conquer trade, not by the force of arms but by the arts of peace.

IN the last issue of THE MAIL remark was made upon the resulting advantages of the direct mail and transportation service between the United States and Brazil under the administration of the United States and Brazil Mail Steamship Line. Since then official announcement has been given of the opening of the executive offices in New York of the Pedro Segundo American Telegraph and Cable Company, an association formed to provide direct telegraphic communication with

South America. The initiation of this enterprise is another step forward in the work of connecting the commercial and social interests of the two great divisions of the American continent. The company has been chartered under the laws of the State of New York, and the Emperor of Brazil has accorded permission to use his name in its title. The officers of the company are Horace K. Thurber, president; Edward R. Bacon, vice-president; Charles R. Flint, treasurer; De Borden Wilmot, secretary; J. Edward Simmons, Francis A. Bassler, Charles H. Sandford, John C. Redman and Henry W. Cannon, directors. The Imperial Government of Brazil and the Republic of Venezuela have granted very favorable concessions to the company and the latter proposes to fix its rates much lower than those at present established by the cable pool, and its facilities will be greatly enhanced by the government telegraph land lines of Brazil and Venezuela, with which traffic agreements have already been made. Messages between this city and South America will be transmitted in less than one-fourth the time now consumed by the European cables. The work of laying the cables will begin in October and it is expected that the lines between New York and Rio de Janeiro will be in operation at the beginning of, or early in, 1887. We welcome this enterprise and hope for its successful completion. Its effect has already been felt, in that a considerable reduction in the cost of telegrams to Brazil, via Europe, has been made since the formation of the new company.

RESOURCES OF THE SANDWICH ISLANDS.

THE Sandwich Islands were discovered by Captain Cook, of the British navy, in 1777 and 1778. This island group is situated in the Northern Pacific: only eight being inhabited, Hawaii, Maui, Oahu, Kauai, Molokai, Lavai, Kahoolawe and Niihau, of an aggregate area of 6,740 square miles, of which 4,210 constitute the size of Hawaii alone, which rises to an elevation of 13,805 feet. The census of 1884 showed a population of 80,578, 40,014 being native Kanakas, 17,939 Chinese, 17,335 whites, of whom 2,066 Americans and 9,377 Portuguese from the Azores and Madeira. Immigration in 1884 was 7,654, emigration, 4,941; immigrants retained, 2,713.

The income in 1882-4 was \$3,218,626, and the expenditure \$3,216,406; the budget of 1884-6 estimates the revenue at \$2,334,650, and the expenditure at \$2,271,843. The public debt on April 1, 1884, was \$898,800. A 6 per cent. \$2,000,000 loan was authorized in August, 1882, for the construction of public works.

There are thirty-two miles of railways in operation in these islands. The number of international letters received and forwarded in 1883 was 233,272, domestic, 438,865. There are 230 miles of telegraph lines. There were registered in 1883 fifty-three vessels, of a joint tonnage of 9,826 tons, twelve being steamers.

The chief product is sugar, and next in importance is rice; bananas are also beginning to be extensively exported. Coffee is grown up to an altitude of 2,000 feet, the finest quality coming from the Kona district. Tobacco has so far been cultivated for domestic consumption merely, but all familiar with tobacco-growing assert that the very best quality may be produced. Indigo and sumac have been neglected, and have ceased to be of any importance; but there is a great variety of native medicinal and textile plants. All tropical products thrive if properly cultivated, and on the mountains of Hawaii and Maui the cereals, fruit and grasses of the temperate zone flourish as well. The forests contain valuable timber, but sandal wood, formerly abundant, has become extinct.

The breeding of cattle and horses has for some years past made notable headway, \$595,105 having been invested in cattle and horses, procured from abroad for the purpose, during the four years and nine months ended October 31, 1885. "Bagasse," the expressed sugar cane, is worked with the aid of

machinery into paper pulp on the "Nonpareil" sugar plantation and the pulp is exported to England. Following is a statement of the exports for a series of years. Quantities in thousands of pounds:

	EXPORTS.			
	1884.	1883.	1882.	1862.
Sugar.....	142,555	114,197	144,178	3,008
Rice.....	9,535	12,088	12,169	111
Coffee.....	4	16	8	146
Tallow.....	3	24	78	243
Wool.....	408	318	590	40
Bananas..... bunches.	58,040	44,900	28,948	....
Hides and skins..... number.	41,151	63,750	53,864	68,537

Subjoined is a statement of general commerce and navigation:

	1884.	1883.	1882.	1881.
Imports*.....	\$4,638	\$5,624	\$4,975	\$4,548
Exports*.....	8,185	8,133	8,299	6,855
Total native products.....	8,068	8,036	8,166	6,789
Customs receipts.....	552	577	505	423
Vessels entered, number.....	241	267	258	258
" " tonnage.....	187,826	185,315	172,619	159,341
" " whalers.....	23	....	32	19

* In thousands of dollars.

The maritime movement at Honolulu was: Vessels entered in 1884, 239, with a joint tonnage of 186,871. Of these 191 were American, 135,618 tons; 29 English, 41,398 tons; 4 German, 2,958 tons; 4 French, 3,225 tons, and 11 Hawaiian, 3,672 tons. Imports into Honolulu the same year, \$4,279,278; exports, \$6,731,379.

AMERICAN TRADE.

	Calendar Years.	1884.	1885.
Imports from the Sandwich Islands.....		\$7,974,093	\$8,563,387
Domestic exports to the Sandwich Islands.....		3,050,156	2,828,041

HAWAIIAN SUGAR IMPORTATION INTO THE UNITED STATES.

Before the Reciprocity Treaty.		Since the Reciprocity Treaty.	
1868.....	pounds. 18,241,062	1877.....	pounds. 30,642,081
1869.....	16,314,482	1878.....	30,368,328
1870.....	14,016,181	1879.....	41,693,069
1871.....	15,018,469	1880.....	61,556,324
1872.....	15,357,784	1881.....	76,909,207
1873.....	15,743,146	1882.....	106,181,858
1874.....	13,575,674	1883.....	114,132,670
1875.....	17,888,000	1884.....	125,148,680
1876.....	20,978,374	1885.....	169,652,783
Total.....	147,133,172	Total.....	756,265,000

LATE DEVELOPMENTS IN JAMAICA.

SUGAR production, both cane and beet, is again assuming such proportions, after the temporary curtailment of beet seeding last year, that prices have been tending downward rapidly this summer and may go lower still during the fall, the crop on the Continent of Europe promising the greatest yield yet attained. The difficulties resulting from an unprofitable leading industry are, therefore, likely to be renewed in all of the producing countries, and in anticipation of this we shall refer to Jamaica, where planters two years ago had become very restless. At that time they and their friends tried to prevail on the home government to negotiate a reciprocity treaty with this country somewhat similar to that negotiated at Madrid in the summer of 1884, and when this failed the Jamaicans suggested a confederation with Canada, and endeavored to secure there at least the advantages which the United States were not prepared to extend to them. But the Canadians received the proposition as coldly.

The fact of the matter is that the people of Jamaica cannot hold out great inducements to either Americans or Canadians. The provisions, fish, petroleum and lumber which they require they cannot import from Europe, and they must buy these goods under all circumstances from the North. The Jamaica market is not large, nor would the removal of duties or a reduction of them increase perceptibly the sale of American or Canadian goods in the island or even in all of the British West India islands combined.

The suggestion to admit Jamaica or British West India sugar

into this country or Canada duty free does not obtain favor with either of the latter. Public sentiment in both seems to condemn the idea of extending privileges of a special kind to any of the American countries south of them to the exclusion of others, for, they say, why should sugar from Java pay duty, for example, if that island is buying our products freely and there is a prospect of this trade becoming very important, whereas sugar from Jamaica would enter duty-free, while trade prospects there may be less promising than with the Dutch East Indies. In other words, it seems that neither of the two northern countries is inclined just at present to barter away its independence in fiscal matters for a small consideration, indeed, for any consideration, unless, as in the case of the Sandwich Islands, there may be special reasons prevailing with the United States to make an exception.

As our domestic exports to Jamaica are, nevertheless, considerable, we shall attempt a short description of the island and its development since the reforms of 1883.

Jamaica is the largest of the British West Indies, being 144 miles in length and 50 in extreme breadth, and containing 4,913 square miles. There are 198 sugar estates in operation. It is estimated that Jamaica contains 2,683,520 acres, from which may be deducted 365,828 acres as useless for agriculture, consisting chiefly of swamps, rocks and inaccessible lands, leaving 2,317,692 acres available for cultivation. Of this 592,405 acres were returned as under cultivation in 1884.

Jamaica was discovered by Columbus on May 3, 1494. He called it Santiago and it remained in possession of the Spaniards for 161 years, when it was attacked by a force sent by Cromwell, under Admirals Penn and Venables, against Hispaniola (St. Domingo) and capitulated, after a trifling resistance, on May 3, 1655. After the capture of the island, until the Restoration of Charles II., Jamaica remained under military jurisdiction. In 1660, the first establishment of a regular civil government was made by Charles II., who appointed G. D'Oyley Governor-in-Chief, with an elective council. In 1670 peace was made with Spain, and the title of England to Jamaica was recognized by the Treaty of Madrid. In 1807 the slave trade was abolished, at which time there were 323,827 slaves in the island. During the last eight years of the trade 86,821 slaves were imported. On the abolition of slavery in 1833, Jamaica received £6,161,927 of the £20,000,000 granted by the British Government as compensation to the slave-owners, being rather more than £19 a head in a slave population of 309,338.

The climate is varied. The mean temperature of Kingston is about 80°. As the temperature falls about 1° for every 300 feet of ascent, and as there is a lofty range of mountains which run down the middle of the whole island, it is possible, in a few hours, to reach a cool and delightful climate. The rainy seasons are in May and October. The annual rainfall varies throughout the island from about thirty inches to as much as eighty inches.

The total general and local revenues of Jamaica amount to about twenty shillings per head of the population, but this calculation includes local rates, railway, telegraph and postage receipts and reimbursements. The customs tariff and the excise produce respectively 6s. 6d. and 2s. 4d. per head of the population. The taxes on land are almost nominal, yielding only about £12,000. The principal sums are derived from import duties, which yield about £250,000; excise duty on rum at 5s. per gallon, yielding £86,000; stamps, £15,500; licenses, £16,000, and postal revenue, £16,500. The new railway receipts, estimated at £47,200 for 1885-6, and reimbursements swell the total revenue. The public debt is £1,257,916. The revenue in 1875 was £527,018; in 1884, £561,287. Expenditure in 1875, £509,436; in 1884, £531,885. The population is 580,804, of which 14,433 are white, 109,946 colored, 444,186 black, 11,016 East Indians, and 1,224 others.

There are on deposit in government savings-banks, established in 1871 in all the principal towns, £330,000, the rate of interest being 3 per cent.

There is weekly communication with Europe through three English and one French lines of steamships, and as frequent with the United States. Telegraphic communication with all the world is complete. A line of inland telegraph connecting all the principal towns and having forty-one stations is completed.

The government railway extends from Kingston to Porus, in the parish of Manchester, in one direction, a distance of fifty miles, and to Ewarton, in the parish of Clarendon, in the other direction, a distance of forty-three miles.

Weekly steam communication round the island to the principal outports has been established. The circuit is completed within 120 hours.

The exports and imports have been as under :

	Imports.	Exports.
1875	£1,759,942	£1,410,485
1884	1,568,630	1,483,980

The many Jamaica negroes working on the Panama Canal, usually some 10,000 at a time, earning good wages and always returning to the island after making their modest pile, help to spread some well-being among the negro population of Jamaica.

At present the future of Jamaica looks promising, except so far as sugar making is concerned, and in this, unless the planters resolutely adopt the latest improvements in production recently introduced into Cuba, Brazil, Demerara and Martinique, as well as in Louisiana, they will suffer.

NOT a little interest attaches to a meeting of representatives of various commercial bodies which was held at London early in July. The occasion was the first congress of chambers of commerce of the British empire, and it was largely attended by delegates from the different chambers throughout the United Kingdom and the British colonies. Several papers were read, and the titles of these will serve as an index to the character of the meeting and the discussions. These were: "Emigration," "Postal and Telegraphic Reform," "Imperial Federation," "Codification and Assimilation of the Commercial Law of the British Empire," "State Guaranty of War Risks," "The Silver Question," and "Bills of Lading Reform." On the emigration question it was held urgent that the current of British emigration should be diverted from the United States to the colonies, and it was resolved to impress this upon the government. We are of opinion that extraordinary means must be resorted to for the purpose of carrying out this change if it is to be immediately developed. As it is the colonies do not present industrial opportunities and inducements which are in anywise commensurate with those of this country. The federation scheme aims at combining all divisions of the British empire under the same policy, which in effect means that the colonies will be called upon to subordinate themselves thoroughly to the doctrine of free trade. On the silver question the congress reaffirmed what is known as the Birmingham resolution, pronouncing in favor of the remonetization of silver as at least a partial relief from the depression of trade. We are not in position to judge of the probable effect of this expression of opinion upon the British Government; but it is well understood that the leading public men of Great Britain are monometallists, unless, indeed, they have seen fit to change or modify their views more in consonance with what may now be accepted as the demand of the representatives of the commercial interests of the empire. We will not dwell further upon the proceedings of this congress, but refer our readers to the columns of our contemporary, the *Chamber of Commerce Journal* of August 5, where a full report will be found.

Communications.

Washington.

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., July 27, 1886.

THOSE best qualified to know believe that the present week will be the last week of the first session of the Forty-ninth Congress, and members and Senators cheerfully state that their legislative labors will cease with the first or second day of August next. In view of the fact that unfinished business is in good shape and that most legislators are anxious to get home, it is quite likely that the predictions already referred to are safe. Four appropriation bills, besides the River and Harbor bill, remain unfinished. The Sundry Civil bill and the General Deficiency bill have now both passed the Senate. The Legislative and Judicial is in conference, and the Fortifications is in Senate committee. The River and Harbor bill will be agreed to in conference early this week, but several presume to say that the President will veto it. The Sundry Civil bill will reach the House to-day and go in conference, and there be patched up. This treatment will be followed with all the appropriation bills during the present week, thus avoiding useless and tiresome debates. Mr. Reagan will do his utmost to get his Interstate bill going, and, as it is now unfinished business, it is possible that it will take up the time of the House when the appropriation bills are not in the way. Both parties are about agreed that nothing but filibustering shall be done to consume the time and prevent other legislation while the House is waiting for conference reports on the appropriation bills.

The Senate will consider the Naval Reconstruction and the Morrison surplus resolution matters and while waiting for reports from committees will spend the time in secret sessions on nominations. It is believed that all of the appropriation bills will reach the President by Saturday, but should there be any delay it is likely that Congress will hold a Sunday session in order to get away on Monday, thus accommodating the wishes of many members who have made arrangements to leave the capital about that time. Much uncertainty is felt as to what the Senate will do relative to the Fortifications bill; if they decide to increase the item of one million for defenses to eighteen millions, as some believe they will, such action may still further prolong the session.

The Morrison Surplus resolution seems to be one of the most interesting topics of the present week. It will be reported to the Senate to-day. It is thought the committee will recommend the passage of the resolution with an amendment to increase the minimum reserve from \$100,000,000, as fixed by the House, to \$130,000,000, which the majority of Republicans believe is the smallest amount to which the reserve could be reduced with safety to the public credit. The House has already rejected the amendment now offered by the Senate. A conference committee will probably restore the resolution to the shape in which it passed the House, and in this condition it will probably reach the President for his approval or veto.

The much-discussed Oleomargarine bill has at last passed both Houses, and is now before the Attorney-General, to whom it was sent by the President for the purpose of getting the chief law officer's opinion as to its constitutionality. The tax on oleomargarine was reduced by the Senate from five cents per pound, as fixed by the House, to two cents per pound. Many dairymen think this reduction is virtually a defeat of the proposed legislation, while others think it is unlawful to place any tax upon an article of food. Most everyone concedes that it is just and fair that oleomargarine should be marked when offered for sale, so that when a purchaser goes to market he may be able to tell which is butter and which is not butter. Senator Evarts made a strong speech in favor of the bill, while some of the ablest lawyers in the House spoke against the measure as being unconstitutional.

The Senate yesterday passed the House bill directing the Commissioner of Labor to investigate as to convict labor. A Senate joint resolution was placed on the calendar relative to alcoholic liquors and other poisonous beverages. This amendment to the Constitution proposes that from and after the year 1900 the manufacture, sale and importation of distilled alcoholic intoxicating liquors, except for medicinal, mechan-

ical, chemical and scientific purposes, and for use in the arts, shall cease. This new clause in favor of prohibition is introduced and championed by Senator Blair, the stalwart friend of the temperance cause. It will hardly ever become a part of the hoary old Constitution of the fathers.

The Senate also passed the General Deficiency bill yesterday, and among the items of interest was one to pay the United States and Brazil Steamship Company \$36,000 for carrying the mails during the last fiscal year. The Senate committee reported the Fortifications bill yesterday with amendments. The principal amendment is one suggested by Senator Hawley, representing the committee on coast defenses. It proposes to appropriate \$6,000,000 for the purpose of contracting with American manufacturers to put down plant and make and deliver to the War and Navy departments a certain quantity of ordnance, from six to sixteen inch calibre, within the next three years. The total amount appropriated by the bill, as it passed the House, was only \$500,000.

But little was done in the House yesterday. They refused to agree to the Senate amendment to the Legislative bill providing for Senators' clerks. Under the call of States a number of bills were introduced, among them one providing for a committee to inquire into the expenditures of General W. S. Hancock in entertaining the French visitors in 1881, and to ascertain whether the same has been paid to his estate.

The first session of the present Congress will adjourn without having done anything worthy of note touching matters of importance to the country; but very few bills have become laws, and none of the great questions, which at first started out so promising, have been settled. The Interstate traffic, the Educational scheme, the Tariff and the Labor questions are no nearer solution than when the session was two months old. But one bill of much value has become a law, and that is almost a local matter, namely, the bill for the construction of a national building for the library of Congress.

In the departments business is very quiet and nothing of an interesting nature can be learned. At the State Department no news can be obtained relative to the fishery question or the Mexican trouble. This department recently lost a valuable officer who had long given faithful and intelligent service to the government, William Hunter, Second Assistant-Secretary of State. Mr. Hunter was born in Newport, R. I., and was eighty-one years old when he died, and for fifty-seven years he has been an employee of the State Department. He was first appointed, May 22, 1829, a clerk at \$900 a year. When the bureau relating to Spanish-American interests was organized he was made its chief. From one post of trust and honor to another he soon reached the position of Chief Clerk of the Department. In 1853, when Edward Everett, Secretary of State, resigned, Mr. Hunter acted in his stead for a short time. In 1855, and also for a short time in 1860, Mr. Hunter acted as Assistant-Secretary of State, and in 1866 Congress recognized his long and distinguished services by creating the office of Assistant-Secretary of State for him, which place he held continuously ever since, Congress having passed a resolution that he should not be removed. He was highly thought of by many eminent men in all branches of the government and very popular with the employees of his own department.

At the War Department it is stated that no United States troops have been ordered to Fort Bliss in anticipation of trouble at El Paso del Norte, contingent upon the refusal of the Mexican authorities to release Editor Cutting. Officials say that the massing of Mexican troops at that place does not in itself signify a probable rupture of the peaceful relations between Mexico and the United States, but is very likely a strategic military movement against the revolutionists. Both in the House and Senate yesterday resolutions were introduced asking for information on this subject and as to whether United States troops had been ordered to Fort Bliss. A scrimmage with Mexico at this time would be very unfortunate, in view of the fact that American citizens are building railroads and hunting trade throughout the Mexican States, as well as bidding for a more friendly commercial intercourse with the people there.

At the Treasury Department the report of the Commissioner of Internal Revenue affords some interesting statistics for the present week. For the year ending June 30 last the total collections were \$116,902,845.54, an increase over the previous year of \$4,481,724.47.

Of the amount collected, Maryland and the District of Columbia contribute \$2,462,092.46. The cost of collection was \$112,421,121.07, which was \$155,000 less than the cost of the previous year. The aggregate receipts from the several sources for the two years were as follows:

	1885.	1886.
Spirits.....	\$67,511,200	\$69,092,263
Tobacco.....	26,407,088	27,907,363
Fermented liquors.....	18,230,782	19,676,731
Miscellaneous.....	247,042	226,488
Banks.....	25,000	.....
Totals.....	\$112,421,122	\$116,902,845

As the tax on State banks and bankers had been repealed, nothing was received from that source during 1886. The receipts from fermented liquors include a tax on 20,710,933 barrels, an increase of 1,524,980 barrels over the preceding year. Allowing forty gallons to a barrel, this gives 823,437,320 gallons as the quantity of fermented liquors of domestic manufacture drank up last year by the citizens of this great Republic. With such a showing it is quite evident that very soon we will outdo the Dutch in stowing away the foaming lager. The Commissioner says in his report that it is yet too early to make any accurate estimate of the total collections for the current fiscal year. Reports from the various collection districts, however, and information from the large manufacturing centres, together with the large increase in the receipts for the present month as compared with the same month of last year, indicate that the receipts for the year will be largely increased. The States in which the greatest collections were made for the past year were as follows: Illinois, \$23,852,253; Kentucky, \$15,746,940; New York, \$14,365,209; Ohio, \$12,921,349; Pennsylvania, \$7,847,231, and Missouri, \$7,060,649. The smallest collections were made in Vermont and Mississippi, being \$32,503 and \$47,062 respectively.

Arrangements had been made for a special meeting last night at Willard's Hotel of the joint committee on the library of the two Houses, to consider the subject of the proposed exposition in this city in 1889-92, but a night session of the Senate caused a postponement of the meeting. Responses favoring the commemoration of the discovery of America and the adoption of the Federal constitution by the holding of the proposed exposition here, have now been received from the governors of thirty-eight States and Territories, from the chief municipal officers and leading members of manufacturing and commercial organizations in nearly every important city in the country, as well as from many citizens engaged in large business enterprises. All of the members of the Senate Committee on the library are favorably inclined, and it is thought members of the House will also favor the project. Advices have been received from all of the Spanish-American States, showing much interest and expressing a willingness to co-operate, by making large exhibits of their products and manufactures. The plan of holding the exposition at New York, which was agitated strongly some time ago, is not spoken of now, and it is generally believed Washington is the best place for such an exhibition, because of its prominence as the capital and its facilities for receiving and taking care of large crowds of visitors.

MONT.

AN industrial syndicate has been formed in the department of the Nord, France, for the regulation of prices and production, and the conditions that unite the members are of a very severe character. Thus, a fine of £480 will be inflicted upon any member of the syndicate who infringes the conditions imposed with reference to production. The manager of any works selling below the quotations fixed by general agreement will also be forbidden to continue their production. M. Chadeffand, director of the Denain forges, has been appointed president of the syndicate.

A ST. LOUIS man has invented a new motor for street cars. It is an engine receiving power from gas from coal-oil. The oil is in a tank in the roof of the car, the gas being generated as used. The flash of the explosion as it passes into the cylinder heats the air, producing expansion. The only difficulty, so far, has appeared to be the nervousness of the general public in riding on or near a car carrying oil, but it is claimed that there would be absolutely no danger whatever. The inventor claims that he can furnish power for a 10-horse engine, which would pull three or four cars, at a cost of \$1 a day, the engine working noiselessly. The engine would occupy no more space than the lever in a grip car.

U. S. Ministers and Consuls.

Russian and American Refined Petroleum.

CONSUL-GENERAL JUSSEN.

PROMINENT Austrian business men and capitalists who have already made application for the incorporation of the syndicate which is to organize and carry on a new refinery near Trieste, and who have studied the petroleum question for years, are decidedly of the opinion that, as to illuminating qualities, Russian petroleum cannot be compared with American, and that even if the same machinery and the same skill were employed in refining Russian crude oil, the product would still be inferior to the American refined petroleum. They intend to refine American petroleum exclusively at the refinery near Trieste, and are confident that they can manufacture a much better article than can possibly be produced out of Russian crude petroleum.

They do not fear the competition of the Russian product, and predict that it will be driven out of the market as soon as the American product, refined near Trieste, is ready for consumption.

I can state from actual observation and experience that, as far as the Austrian market is concerned, there is no kerosene to be found which is equal to the imported American refined, and that, although the refiners of Fiume have experimented with a mixture of Russian and American petroleum, the result has fallen far short of the mark. And this is not only the result of my own observations and investigations, but also the positive opinion of Austrian experts, who stand ready to back their convictions with their money in embarking in the contemplated venture near Trieste.

Aside from the superior illuminating qualities of the American petroleum, its profitable yield of benzine, paraffine and other refuse products established its great superiority over Russian and Galician oils.

The Galician crude petroleum yields but 35 per cent. of illuminating oil of the poorest quality, the remaining 65 per cent. yielding lubricating oils of an inferior quality.

The Russian crude petroleum yields but a trifle more than 27 per cent. of illuminating oil, and out of the remaining 73 per cent. only a small portion of valuable refuse products can be produced.

The American crude oil, however, yields 75 per cent. of illuminating oil, and nearly the whole of the remaining 25 per cent. furnishes the raw material for very valuable products, viz., benzine, paraffine, &c.

Mining Industries of China.

CONSUL WITHERS.

THE small advances made by the Chinese in developing and utilizing the mineral wealth of their country, mainly attributable to the innate hostility both of the people and the government to any innovation on ancient usages and customs, would appear to have received recently an impetus in the province of Kwangtung which justifies the expectation of impending progress.

This is due mainly to the efforts and enterprise of Ho Amei, a native of Canton, who, after some years' residence in Australia, has returned to his native province, with the accumulated knowledge and experience derived from his connection with mining enterprises in that country.

He has leased a silver mine at Tamchow, from which considerable ore had been taken, but the workings had been abandoned on account of water, which they could not get rid of with the appliances then used. To overcome the obstacle hitherto insuperable to mining as conducted by Chinese, he has provided mining machinery of the most modern and improved character.

But his efforts to secure from the Chinese Government the adoption of a more liberal policy in connection with mining operations are worthy of more attention. From a speech delivered by him a few days since at the opening of the "Tai Yu Shun silver-lead mine," a few miles from Hong Kong, we gather the following particulars, which are of importance in this connection:

He has obtained from the Provisional Government of Canton permission to work the mines. He endeavored to impress the government with the important fact that by opening up the mineral resources of the country not only would profits accrue to those engaged in this business, but that great benefit would be derived from the employment of large numbers of the laboring classes, thereby furnishing remuneration.

rative employment to them at home, preventing emigration and adding to the wealth of the country.

He also urged the establishment by the government of an "office of mines," at which any person could obtain a license to open and work mines. This proposal has been favorably considered by the viceroy, who has memorialized the throne for imperial sanction. The viceroy has already appointed two totais as superintendents of the mining office, which was opened about the first of March, and for \$1,000 any Chinaman could obtain a license to work any mine in perpetuity, the government receiving a royalty of the proceeds after all expenses are paid. This royalty the viceroy and high officials have fixed at 10 per cent. for silver; that on other metals to be determined hereafter. More than fifty applications for licenses have been sent in since this office was opened, but before license is granted the authorities will consult the residents in the vicinity of the proposed localities, to ascertain whether they object, for it seems admitted that unless the operators have the support of the public they cannot expect to succeed.

I have deemed these facts of sufficient interest to report them, as they are indicative of progress and justify the expectation that the day is not far distant when the mineral resources of this country will be developed, and a demand be created not only for mining machinery of the most approved patterns, but also for the services of skilled mining engineers and other operatives, whose services must, for a time at least prove indispensable. I will add, that I have submitted this statement mainly because the Tai Yu Shun mine is located on the island of Lantau, only six or seven miles from Hong Kong, and that I had opportunity of judging by ocular inspection of the rich character of the galena exposed in the preliminary blastings.

Condition of Labor in Germany.

CONSUL WAMER.

RECENTLY published statistics indicate that the value of the exports from this country to the United States has latterly been increasing, and while cheapness of labor here contributes largely to bring about this result the fact must not be overlooked that Germany is at present giving every encouragement to the enlargement of her export trade. Indeed, the Germans are leaving nothing undone to push their goods in foreign markets. I am, though, inclined to believe that in many instances there is scarcely any profits, if any at all, made on these shipments. The exporters, however, seem to be content to wait for better times, and they go on exporting in the hope that an improvement will soon set in.

A remarkable thing connected with the exports to the United States is that German exporters consign almost entirely to firms in America of German origin, as the records of this consulate show that fully 99 per cent. of such goods are consigned in this way. And it is here that I desire to bring before the attention of our merchants the advisability of also sending their agents abroad to push the sale of their goods.

The wages throughout Germany may be described as very low. In Westphalia and Rhineland wages are generally at their best, but in poorer districts the standard is much lower, notably in Upper Silesia, where the laboring classes earn from 30 to 40 per cent. less than in those districts even. In the latter a laborer, whether he works in iron or steel works, manufactories, coal mines, stone quarries, buildings, or railways, earns, as a rule, from two to three marks (say 47 to 70 cents) per day, and if he is a skilled laborer he may get three and a half to four marks (say 80 to 92 cents) per day. Female labor is allowed only in certain cases, and women, when employed, earn from one mark to one mark and a quarter (say 24 to 30 cents) per day. If a woman is debarred from getting employment, then she generally seeks to earn money by needlework, or light work of similar kind, so as to add to the means for supporting the family. Boys under sixteen years of age on leaving school are taken into employment and receive eighty pfennigs to one mark (say 19 to 24 cents) per day and extra strong boys may earn 30 cents per day.

The working hours are from six to six in summer, and seven to seven in winter; one hour is allowed for dinner, half an hour in the morning for breakfast and half an hour in the afternoon for coffee.

On Sundays work is suspended, except when urgent repairs are required. The government has no power or right to interfere with the working hours, but it takes care that certain restrictions with regard to the employment of women and children are observed.

Latterly, the system of paying the laborers by piece-work has been generally adopted, and the wages thus earned are on a scale already referred to. To provide for sickness and accident, as required by law, the workman is obliged to contribute to a saving fund out of his earnings.

As to his mode of living, he requires for rent from twelve to eighteen marks (say from \$2.85 to \$4.20) per month, so that in fact one week's wages are entirely expended for this item.

For his meals he has to spend per day about one mark (say 24 cents), which sum is apportioned as follows:

Dinner.....	Pfennigs. 40
Supper.....	30
Breakfast.....	15
Coffee, afternoon.....	15

Making in all one mark, or 24 cents.

His meals consist principally of potatoes (for dinner, potato soup with a slice of bacon), peas, beans, vegetables, common pork and black bread, sometimes dried fish, and now and then ordinary beef meat, but more frequently horse-flesh.

The laboring man is, as a rule, rather sparingly supplied with clothing and linen, and a white shirt is to be seen only on rare occasions. For these articles he has but little money left, and is often reduced to bargain for old and left-off clothes and things.

The careful laborer, however, finds it more to his interest to procure these articles, as well as the necessities of life, at the co-operative stores, which now exist almost everywhere.

Here the workingman finds the largest selection, the best goods and the fairest prices, and if he can produce his tax receipt he is allowed to have goods on credit, the laborer engaging to pay on receipt of his weekly wages; those who are paid by the month are permitted to pay at the end of the month.

But it seems doubtful whether the granting of credit at such stores is good and sound in principle, or even advantageous to the laboring man himself.

Speaking with a representative workman on the subject, he gave it as his opinion that the credit system was injurious. He stated as his reason that workingmen would always be found that did not, or would not, keep up their payments, and a man who once got into debt would find it difficult to set matters right again.

Thus the co-operative society would become eventually the losers, and would seek to recover either by raising the prices or by furnishing articles of inferior quality. From this point of view the system of giving credit does not find favor with that class of men who practise economy and are punctual in their payments.

There are, of course, some minor expenses which a laboring man has to provide for, but to which no special reference need be made, and taking a general view of his position it cannot be looked upon in a favorable light, and frequently the situation is aggravated by much illness, and perhaps by want of employment.

However, much has lately been done to assist him and better his condition.

There is, for instance, the "Wohltätigkeits-Verein," a society for charitable purposes, whose object is to help, especially in winter and in exceptionally difficult times, such families who can show that they are struggling with adversity and are otherwise entitled to public support. Such families receive assistance in money, clothes, fuel, food, &c., and in winter soup tickets are issued for the low sum of ten pfennigs (a trifle more than two cents). Besides, the society undertake to do their best to find employment or situations for those who are in want of the same.

In addition to the sick and accident fund already referred to, there has been established recently by parliamentary enactment the so-called "Berufs-genossenschaft," by which all the chief employers of labor are formed into separate societies, corresponding to their respective branches of business, for the purpose of insuring their workmen against sickness and accident, and making some provision for the workmen in old age.

As to the housing of the workmen, the attention of the government is being given to this subject, and measures have already been taken in this direction in larger cities, but very much yet remains to be done. Many of the leading manufacturers erect at their own cost lodgings for their workmen and ask but a small rent, but there are a very large number of workmen who live in very small and ill-ventilated rooms.

Indeed, families of five and six in number often live and sleep together in one room, which certainly is not conducive to good health.

With regard to food, efforts have been made lately, especially at Berlin, to combine goodness with cheapness. Last year there were fifteen workingman's kitchens established in Berlin and provided 1,987,918 portions (of which 118,545 were whole portions, and 1,792,164 half portions for dinner, and 77,209 portions for supper); the receipts amounted to 303,093 marks, and the expenditure to 204,353 marks. In preparing the meals these kitchens used 1,275 cwt. meat, 99 cwt. bacon, 249 cwt. lard, 12,634 sausages, 316 cwt. flour, 11,492 cwt. potatoes, 3,252 cwt. beans and peas, 255 cwt. rice, and a large quantity of other things.

The state of health of the workingmen has, generally speaking, been good of late years, but there is one great and serious evil to be got rid of, and that is the excessive drinking of "schnaps."

The worst feature about this is that the quality of this liquor is generally very poor and frequently absolutely injurious, and whether the government brandy bill—the so-called brandy monopoly bill, which was so much discussed this year in the Reichstag—was a mistake or not, it is undeniable that the proposed measure possessed one virtue, that it would have supplied the workingmen with a far better quality of brandy.

In conclusion, it is useless to conceal the fact that in spite of what has been done, and is still being done, by the German Government for the improvement of its laboring people, there are in some parts indications of discontent, and whether it may be ascribed to the tactics of the Socialists, or to the effect of the numerous strikes in other countries, is an open question.

To the government, however, credit must certainly be given for its untiring efforts in trying to elevate the condition of its workmen.

Manganese Deposits of Chili.

CONSUL DUNN.

THE deposits of manganese ore in Chili may be said, practically speaking, to be unexplored; nevertheless, enough is known from the investigations of several eminent geologists to leave no room to doubt that the mineral in question exists in immense quantities in the republic and more especially in the Northern provinces.

The first attempt to utilize the ore was made about three years ago, when a bed, situated at some distance to the south of Santiago, the capital of the republic, was opened; but the cost of conveying the ore to Valparaiso for shipment proved an insuperable obstacle to the success of the undertaking and it was abandoned.

After the abandonment of the undertaking just referred to, operations were commenced on a deposit of manganese in the province of Coquimbo, and in 1885, 4,118,015 kilogs. of the ore were exported to England.

The beds of manganese in the province of Coquimbo are surface deposits and the cost of taking out the ore is trifling, but the great difficulty is the expense of transportation to the coast. The bed which is being worked in the province of Coquimbo is situated in close proximity to a railway and the ore is being conveyed to the port of shipment (Coquimbo) on very liberal terms; nevertheless, the cost of the ore by the time it is placed alongside a vessel in Coquimbo harbor ranges from \$10 to \$12, Chilean currency, per ton.

The price of manganese in England is quoted to-day at £3 10s. per ton for ore of a lye of not less than 45 per cent. The lye of the ore exported from Coquimbo has varied from 45 to 55 per cent.

It is a moot question whether, owing to the heavy cost of transportation to the coast, the shipment of manganese ore can be carried on with profit in normal times, and it is doubtful if exchange on London should rise to 30d. and freights to England should improve to 30s. per ton, whether the Coquimbo bed of manganese could continue to be worked at a profit.

As I have already stated, there is no doubt that immense deposits of manganese ore exist in the north of the republic, but, so far as is known at present, they are situated at some distance from the coast, and, in all probability, would be subject to greater difficulties in the way of successful working than the Coquimbo beds, because the farther north we go labor is higher, the cost of transportation increases and freights rise in proportion to the distance of the shipping port from the port of destination.

Taking it all in all, the working of manganese deposits in Chili may

be said to be on its trial, and another year or two will be required to settle definitely the question whether the ore can be worked permanently at a profit or not.

American Enterprise in Cuba.

CONSUL REIMER.

IT is with great pride and pleasure that I notice the growing importance and the rapid increase of American interests and enterprise in my consular district. In proof of this I need only refer to the Juragua Iron Company, which is entirely controlled by a syndicate of American gentlemen.

This company has built a railroad 27 kilometres long entirely of American material. The large iron pier at the terminus of the road, now 450 feet long and soon to be increased by an additional span of 125 feet, is also the result of American enterprise. The iron mines that furnish the ore which is transported to Philadelphia (I regret to say at present in English bottoms, which precludes the possibility of importing goods from the United States by these steamers, as England does not enjoy the privilege of a favored nation by treaty with Spain) are considered by the officers of this company to be inexhaustible. The present export of iron ore by this company has already reached the high figures of 15,000 tons per month, and will in the near future be increased to 20,000 per month and even more. The company employs a force of some 600 men, and when we consider that all the provisions and other necessities could be, and to a great extent are, imported from the United States, we can form an idea of what advantages the fostering and aiding of such enterprise must mean to our country. We also possess here a gas company supplying the city with excellent gas, built partly by American capital and wholly of machinery and implements manufactured in the United States.

There are also several American capitalists here commencing to increase and work up the mahogany and cedar exportation from here. One company in particular tends fair to soon control a most formidable tract of land in the northern part of this province, and is every day increasing its importance. So on every hand I see evidences of American enterprise. All our fellow-countrymen laud the manner in which the Spanish Government here facilitates their movements by a readiness to help and aid them in every way.

This only holds as regards the executive branch of the government, and does not refer to the custom-house laws and regulations, which tend in every way to discourage importation of all kinds. During the past years the commercial necessities of this district have been largely supplied by German, English and Spanish products and manufactures, but our more advantageous geographical position toward this island and the excellence of our own manufactures and goods must and will give us the supremacy by proper and judicious fostering and aiding the introduction of our manufactures and products. As before mentioned, there are many disadvantages to labor under, and these lie entirely in the Spanish custom-house system; for instance, the Spanish custom-house officials have the privilege of retaining a share of fines imposed on merchants or vessels for breach of custom-house regulations or rules. This, of course, prompts them to fine on all occasions, and for the slightest and most irrelevant error committed. They are also very exacting in their demands and foolishly strict in their rules. This, of course, tends to discourage vessels from coming here, and should be borne in mind in negotiating a new treaty. I have so far succeeded in averting fines from American vessels with only one exception, but to exert influence where law should remedy these defects is not pleasant.

It has often been a matter of wonder to me why this city enjoys such a reputation as being the most unhealthy on this island. Physicians, even the very encyclopædia itself, paint this city in colors that frighten the most fearless from coming here. This I might have understood when the port was crowded with sailing vessels remaining here for a long time waiting for cargo, whose crews, committing excesses and imprudences of every kind, laid themselves open to all kinds of disease and caused epidemics to spread.

Should it be possible to dispel this erroneous opinion this place would not have its equal as a winter resort. During the winter months the temperature varies from 65° to 85° Fahr. The mornings and afternoons are always cool and pleasant. The city is surrounded by lofty

mountains and is itself situated on a hill, which allows all drainage to run off into the bay, where it is carried out by the tide.

During the summer sporadic cases of yellow fever sometimes occur, but these are the natural conditions of every tropical city.

Instead of being the most unhealthy, statistics have shown that it is one of the healthiest cities on this island. The American industries and enterprises are subjected to much annoyance and trouble as regards getting their countrymen to come here to work for them, owing to this bad reputation the town enjoys. It is impossible for me to remedy this evil without the aid of statistics and a thorough and continued canvassing of the sanitary condition of the city. Could I furnish these gentlemen with facts supported by such statistics, I could greatly aid them in dispelling this bad reputation.

A question which at present greatly agitates the sugar growing, and in fact all producing interests here, is the question of labor. The negroes are inadequate in number, and those here are most unreliable, and, while good workmen, cannot be depended upon at any time, as they quit work as soon as they have earned a little money, which they spend, and when spent they return to work. This of course greatly impairs the possibility of systematical and profitable production and exportation, and is often the cause of a great loss of money to the producer.

Were it not that the Spanish Government, in order to protect the industries of their colony, allowed the soldiers of the various regiments stationed here to perform manual labor, this dearth of labor would, I am assured, have a very serious effect on all the industries of this island. The cost of living is very small, and can be fairly estimated for the laborer at 20 cents, Spanish, a day. During the sugar season the prices for labor vary from 50 cents to \$1.20 a day, and can be averaged at 80 cents per day. The sugar season lasts seven months of the year, from December to June, and during the remaining five months the sugar estates only employ half their regular force; the other half can readily find work in agricultural pursuits at same wages. Other industries, such as mining, wood-cutting and farming, of course employ their laborers continually.

In conversation with one of the largest sugar-estate owners here, I learn that from 3,000 to 4,000 men can easily find work. This gentleman suggested the importation of the Chinamen whom we cannot use in the United States, as they are particularly adapted to this climate and to working in the sun. That laborers are most humanely treated here I can testify to from personal observation.

Export Trade of Austria.

CONSUL-GENERAL JUSSEN.

ALTHOUGH a majority of the people look toward the government and its measures for its assistance, and expect sudden and ample relief as to the stagnation of trade and industry through some sort of legislative legerdemain, many energetic and enterprising business men of the country seem to be ready to adopt the American maxim of "help yourself," and are making strenuous efforts to increase the export trade of the empire. Foremost among these are the members of the Austro-Hungarian Export Society, of Vienna.

This society is in correspondence with the Austrian consulates in foreign centres of trade, as well as with Austrian business houses in foreign markets, and is thus enabled to give valuable information to the home manufacturers with reference to the state of the markets abroad, as well as with regard to the kind and description of goods in demand, the rates of tariff, responsibility of foreign merchants, scale of prices, climatic conditions, &c.

As I have already particularly stated in previous reports, this society has been principally instrumental in urging and in convincing the manufacturers of Austria of the necessity of the establishment of sample depots of Austrian manufactures in foreign trade centres, and quite recently another auxiliary to the export trade has been organized in Vienna, mainly through the efforts and energetic action of this same export society.

The auxiliary thus contemplated is the establishment of an "export sample depot" in this city, in connection with the famous Oriental Museum.

This depot is to contain samples of manufactures sold in foreign markets, without reference to their place of manufacture, thus displaying the wares most in demand in these markets and informing the home

manufacturers of the character, shape, quality, and price of the goods which he should produce if he desires to extend his trade to these points.

The obvious distinction between foreign sample depots abroad and an export sample depot in Vienna is that the former is calculated for the use of the foreign purchaser and the latter for the information of the home manufacturers.

If American manufacturers are at all inclined to increase the exportation of their wares to Austro-Hungary, it would certainly be advisable for them to follow the example of the Austrian manufacturers with regard to the establishment of sample depots.

I have frequently called attention heretofore to the advisability of this indispensable auxiliary to our export trade, and consider the subject of sufficient importance to repeat this advice again and again until the trial is made.

Since the establishment of direct navigation between Trieste, Fiume, and New York by Henderson Brothers, the proprietors of the Anchor Line, who have nearly forty steamers at their disposal, many impediments to the importation of American goods into Austria-Hungary will be removed.

Direct steam communication between the two countries will necessarily reduce the rates of freights and commissions, and storage on the way through England or Germany will be entirely avoided. The Anchor Line has made arrangements for a special tariff of freights with the Austrian railroads, and the negotiations with the Hungarian railroads for a like arrangement of special and reduced rates of freight have just been concluded.

With proper concert of action on the part of American manufacturers and exporters, I have no doubt an increase of the export trade to Austria-Hungary can be accomplished.

With a well-supplied sample-room in Vienna and Budapest, superintended by experienced and energetic Americans, it will be speedily ascertained what class of goods will best suit the trade of these markets.

The tariff, of course, is an uncertain quantity in the calculations of the future; at present, however, it is no serious impediment to many articles of American production, which I have particularly mentioned in my former despatches.

American competition in the field of industry and manufacture is a subject of earnest consideration and serious apprehension on the part of the Austrian people and Government.

This fact being notorious and indisputable, the natural deduction follows that we are in a position to compete successfully with Austrian manufactures, and as a logical and practical sequence it would seem to follow that we should improve our opportunity and make use of our advantages.

These advantages would hardly seem plausible or credible if we consider the rates of laborers' wages paid respectively in Austria-Hungary and in the United States. The term "pauper labor" may be applied to the laboring classes of Austria-Hungary with peculiar emphasis, as far as the rates of wages paid here are concerned. But against this low rate of wages we bring into the contest American skill and genius, American energy and machinery, and, above all things, it must not be forgotten that, as a rule, the American laborer performs twice, and in some branches of industry thrice, the amount of labor in a given time as compared with the results achieved by an Austrian laborer.

We are a hard-working people, ready to take advantage of all improvements and inventions; we seem to live only to work and to accumulate the rewards of labor; our recreations are few and far between, and we observe hardly any but national holidays, and with us "Blue Monday" is not a factor in the week's calculation.

The Austrian is in the highest degree conservative. He works exactly in the same manner and mostly with the same tools with which his great-grandfather used to dispose of his daily task. He prefers hand labor to machinery. Holidays are frequent. "Blue Monday" is a time-honored institution, and, above all things, the Austrian lives to enjoy himself according to his means, and sometimes beyond his means. The chances for an investment of his savings are not as promising here as with us. A home of his own, though ever so modest, is beyond his reach. Real estate bears fabulous prices, and the laborer finds consolation for his poor prospect in life by working as little as possible, and by enjoying as much of life's leisure and re-

creations as his earnings can purchase, and he insists, moreover, that his philosophy is the most reasonable and satisfactory in the end.

Possibly he is right from his individual standpoint, but there can be no doubt that this sharp distinction between these two theories of life and its purposes, accounts, in a great measure, for the supremacy of American industries over those of Austria-Hungary.

The Gold and Silver Mines of Honduras.

VICER-CONSUL BERNHARD.

THE gold and silver mines of Honduras are divided into ten mineral districts having nearly two thousand known veins, beside which are the placer gold washings situated on what is known as the "North Coast," that is to say north of the Cordilleras, which, running east and west, divide the country into a north and south section.

I am aware that these placers are attracting great attention in the United States, but, from the best information which I can get on the subject, are not as rich as represented.

The alluvial deposits forming the gold washings average about thirty feet in depth and cover hundreds of square miles, all of which is well watered and heavily timbered.

Experts who have examined the placer country, particularly in the department of Orlancho, unite in pronouncing it equal to the best California hydraulic washings, and say that large investments of capital will meet with handsome profits. On the other hand the earth is too poor to pay the pan-miner.

Gold quartz veins abound on the north and south coasts, while between them lies the great silver belt of the country.

This silver belt is over fifty miles in width and extends across the country from east to west.

The gold quartz veins yield mainly a refractory ore, and the silver ores are principally sulphurets and galenas.

Most all the silver veins carry gold in paying quantities. Many of these veins attained great fame for their production of the precious metals when Honduras formed part of the viceroyalty of Guatemala.

Indeed, Honduras then produced four-fifths of the mineral wealth extracted by Spain from Central America.

Many of the traditions of these would be incredible but for the corroborative proof furnished by the records in possession of the government.

A case in point is the "Claro Rico" mine, located in the department of Choluteca, near the Pacific Coast. This mine produced gold in such quantities that the crown of Spain doubted the genuineness of the metal and appointed a royal commission to investigate, and in consequence a special royal treasurer was stationed at the mine to receive the "King's fifth," the tribute paid by all mines to the crown of Spain.

The richness of another mine, the "Guayabillas," also known as the gambler's mine, in the mineral region of Yuscáran, department of Pariso, once caused a great revolution.

It would not be difficult to cite twenty other instances of rich mines, in fact all the mineral districts contain a number of properties which have been remarkable for their production.

The records in support of the statements made of these mines date back to the last quarter of the seventeenth century, and are in a remarkable state of preservation.

To search them, however, with any particular mine in view is a work requiring considerable time, as their care is divided between the general government and the municipality of Tegucigalpa, and no successful effort has been made to classify them.

The two principal causes leading to the abandonment of the mines since the independence of 1821 were the numerous revolutions and the robbing, under legal permission, the mines of their pillars. These pillars were in most instances very rich and afforded the native miner the readiest profit at the least outlay, but ultimately resulted in the complete ruination of the works.

By the native system of mining and reduction ore yielding less than sixty dollars a ton cannot be worked.

A few years ago the mining laws were amended by the adoption, with some modifications, of the Chilean mining code, and a vigorous effort was made by the government to encourage the investment of foreign capital, and concessions of great value have been repeatedly

granted to individuals proposing to organize companies to develop the mining industry of the country.

The only concession, however, which produced any great result was granted to a Mr. Thomas R. Lombard, of New York city, who organized what is known as the Central American Syndicate Company.

The great privileges possessed by this company have enabled it to secure what are considered the best mines in the country. Under its auspices nine companies have been organized in the State of New York, and are all developing their respective properties on a large scale.

Judging from the work already accomplished and that said to be contemplated, these companies are in possession of ample funds to carry them to success.

The companies have their headquarters in New York city and are known as the Santa Lucia Mining and Milling Company, the Rio Chiquito Company, Santa Elena Mining Company, Honduras Mining Company, Yuscáran Mining Company, Animas Mining Company, and the Pariso Reduction Company.

As the government derives no revenue from the imports and exports of the mines, no data are kept of the bullion exportation.

The government has greatly aided the mining industry within the past ten months by the building of a practical cart-road from the Pacific Coast into the heart of the mining country. This is the only cart-road in Honduras.

The mining laws are liberal, but, excepting in the case of the companies organized under the concession granted to Mr. Lombard, and now owned by the Central American Syndicate Company, titles to mines are not held in fee-simple.

Aliens enjoy the same right as citizens in respect to mines and real estate and the general government is disposed to grant extra privileges to those who can influence the introduction of capital.

A mining claim is 250 varas long by from 100 to 200 varas wide, according to the dip of the vein.

A vara is between 32 and 33 inches long. More than one claim is allowed upon a vein.

The imports and exports on account of the mines are free.

Possession of mines is maintained for an indefinite term by the labor of four men. Natives engaged in mining can be exempt from military duty.

French Trade Extension.

CONSUL NEWMARK.

A NEW syndicate has just been formed in Paris, having for its object the protection and propagation of the products of French industries, to send out inspectors to all countries where they can be practically introduced, and to install representatives of trade in all markets where it may be found necessary and useful.

This syndicate has laid out four routes of exploration. The first comprises the United States, Canada, Mexico, Guatemala, Nicaragua, and the West Indies; the second, Venezuela, the United States of Colombia, Ecuador, Peru, Bolivia, Chili, the Argentine Republic and Brazil; the third includes Australia, Tasmania, New Zealand, New Caledonia, New Hebrides, Eastern Asia, China and Japan; the fourth is Africa, the Levant, and the whole of Western Asia.

The syndicate is confident of creating in all these foreign countries outlets for French industries, and to inspire their respect and appreciation for the home trade-marks. To participate in the advantages of this permanent representation, subscribers to this syndicate, whether manufacturers, merchants, shipowners, or others, pay an annual subscription of \$40 for any two of the above routes, or \$60 for all four, the subscription being paid only upon the departure of the inspectors, and making no subscriber liable for more than his year's subscription.

All those business houses becoming members of the syndicate will have the privilege of having their business cards, samples, and price-lists distributed all over the markets mentioned through the medium of reliable agents.

I do not deem it necessary to comment upon the importance of the recommendations made in the circular of the Minister of Commerce, or of the plans of the syndicate just formed to technically carry them out, nor to suggest their applicability to the condition of the export trade of the United States.

The desirability of finding new outlets for the surplus products of our various industries is recognized as a matter of vital concern, and any suggestions that might lead to such a result would doubtless receive serious consideration.

The United States should control for its products the trade at least of all the Americas and a fair share of that of other portions of the globe. Nothing would so largely contribute to such a result as intelligent co-operation upon the part of its merchants and manufacturers.

Let some such plan as suggested in the above circular be adopted. A national convention composed of delegates from all the chambers of commerce and boards of trade of the country should be held for the purpose of considering this and kindred questions. Such a body, composed, as it would be, of the highest order of intelligence, bringing to its deliberations a full and comprehensive knowledge of the situation, thoroughly conversant with the immense and varied resources of our whole country, would, almost beyond a doubt, evolve some practical plan for the increase of our export trade that would be of lasting benefit to all classes of our people.

The Petroleum Works of Austria.

CONSUL-GENERAL JUSSÉN.

THE amendment of the tariff of Austria-Hungary, which effects a change of the rates of duty on crude Russian petroleum, will, I think, affect the interest of the producers of American crude petroleum very materially and, without doubt, very beneficially.

In order to understand this question fully, a brief résumé of the respective views and action of the Austrian and of the Hungarian legislative committees and a statement of the causes of the conflicting interests of Austria and Hungary is indispensable.

Under the provisions of the Austro-Hungarian tariff now in force the duty on crude petroleum of 8.30° specific gravity or less, American as well as Russian, is 1 florin 10 kreutzers in gold, or 53 cents per 100 kilogs., equal to 22½ pounds English.

The Hungarians, who carry on an extensive petroleum refinery near Fiume, upon Hungarian territory, have taken advantage of this tariff by importing Russian petroleum, partly refined, under the head of crude petroleum.

Russian petroleum in its crude and totally unrefined state yields only about 27 per cent. of petroleum, and the product of the refuse is of very little value, while the American crude petroleum yields 75 per cent. of petroleum, and the remaining 25 per cent. yields very valuable products, as benzine, paraffine and other oils.

But the partially refined Russian petroleum imported by the Hungarians as crude yields 85 per cent. when refined at Fiume. The Austrian Government, which, under the treaty between Austria and Hungary, is entitled to one-third of the import duties collected by Hungary, suffers a severe loss in its receipts of customs revenue by the action of the Hungarian custom-house officers, who pass this partially-refined Russian petroleum as crude at 1.10 florins per 100 kilogs., and for the purpose of remedying this abuse, or rather misconstruction of the tariff provisions, proposed a graduated scale of duties, to be fixed in accordance with the quality and degree of refinement.

The Hungarians objected, and finally a compromise was arrived at by raising the duty on Russian partially-refined petroleum, such as is being imported now by the Hungarian refinery at Fiume, to 3 florins in gold per 100 kilogs., and the duty on American crude petroleum to 1.42 florins in gold per 100 kilogs. This change, however, is not to go into effect until the first day of December, 1887, and then to remain in force and effect for the term of ten years. In the meantime the Fiume refiners will suffer no loss in filling the contracts entered into under the present tariff.

In the *Monatshefte für Chemie* appears the announcement of the discovery of a new metal, which the author, Herr E. Linnemann, has named "austrium." According to the description of its chemical properties, the method of its extraction from the orthite of Arendal and its electric spectrum, austrium appears to the author to be very probably gallium, the presence of a small quantity of which in orthite is not surprising. The two rays of austrium, measured approximately by Herr Linnemann, are $\lambda = 403$ and 416.5 , those of gallium being 403.2 and 417.05 (the mean of the author's measurements and those of MM. Delachanal and Mermet). In austrium, as in gallium, the ray 417 is the stronger.

Foreign Notes.

Argentine Republic.

The receipts of new wool up to June 15 had been impeded by the heavy rains in the interior, the South of the republic being cut off from Buenos Ayres almost entirely for the time. There have been extensive inundations in some districts of the South. Such wool as came to hand, although of average medium quality, was being taken at an advance. Dry hides were firm and 1 to 2 rials higher, 10,000 being taken for the United States at 41 rials gold for Entre-Rios and 37 for Corrientes, while 23-pound classified brought as much as 45 rials gold; stock, 3,000.

Brazil.

The *Diario Official* gives the following statement of the coffee export statistics for the crop year from July 1 to June 30:

FROM RIO DE JANEIRO.					
	1885-6.	1884-5.	1883-4.	1882-3.	1881-2.
To Europe.....bags.	1,001,317	1,250,517	935,417	1,621,581	1,307,483
United States.....	2,430,183	2,538,200	1,978,817	2,550,183	2,239,283
Other countries.....	111,600	141,666	200,004	236,666	258,000
Totals.....	3,543,100	3,930,383	3,114,238	4,408,732	3,804,766
FROM SANTOS.					
	1885-6.	1884-5.	1883-4.	1882-3.	1881-2.
To Europe.....bags.	1,160,766	1,676,050	1,460,266	1,477,950	1,261,167
United States.....	467,216	465,233	411,567	318,667	229,616
Totals.....	1,627,982	2,141,283	1,871,833	1,796,617	1,490,783

The falling-off at both ports will be noticed.

From Bahia, date June 11, sugar-crop prospects were reported to be promising. The stock was 50,000 bags, but nothing had transpired in the way of sales. The views of holders and exporters were too wide apart, 1,300 reis the arroba being asked and 1,200 offered, equal to 9s. 11d.—10s. 11d., cost and freight per cwt. Of cocoa 1,800 bags had arrived, of which 700 sold at 8.10 reis the arroba—62s. 7d. Nothing had transpired in either red or rosewood, the former being nominally quoted at 700 reis. Exchange, 20½d.

British Guiana.

GEORGETOWN, Demerara, June 11.—The weather had been wet during the fortnight and favorable for the growing sugar crop. Following is a statement of the export to June 1:

	1886.	1885.
To United Kingdom.....	29,485	29,472
United States.....	15,232	8,871
Sundries.....	666	246
Totals.....	45,323	38,589

Burmah.

As per cablegram to Fraser & Co., London, the rice movement up to July 19 had been as under:

1886.				
	EXPORT.		LOADING.	
	Steam.	Sail.	Steam.	Sail.
Rangoon.....	118,000	167,000	5,000	....
Bassein.....	42,000	108,000	3,000	2,000
Akyab.....	53,000	62,000	....	1,000
Moulmein.....	38,000	6,000	2,000	....
Totals.....	251,000	343,000	10,000	3,000
	Export.		Loading.	
Total.....	tons.	594,000	tons.	13,000
Grand total (export and loading).....			tons.	607,000

root sugar crop prospects had so much improved on the Continent that there was a strong belief that this year's yield will be the largest ever secured, at the same time reports being uniformly encouraging from the cane-sugar producing countries. White sugar No 3 continued depressed at Paris at 33.50 frs., July delivery, against 47.25 frs. same time last year, the total visible supply, including Cuba, being 1,128,934 tons on both sides of the Atlantic, against 1,158,436 in 1885.

Although the trade in silk goods at Lyons was dull in July, raw silk remained sustained, the stocks in France being light and the cost of the new silk considerably higher than in 1885. The only thing noticeable was the firmness of silk waste after the very large business that had been doing in it for weeks. The general outlook in the silk trade in France seems fair and reassuring without leading to sanguine expectations as to the near future.

Holland.

The *Nederlandsche Courant*, in its monthly coffee review for July states that the pretty general assumption that the Brazil coffee crop now being marketed will not exceed 6,000,000 bags on account of smallness of beans, combined with favorable general position of the staple, has caused a very firm feeling and the ruling of good ordinary Java at 28½ centimes the half kilog., against 25 centimes, the lowest previous price during the past forty years. The general statistics the *Courant* makes as under:

ARRIVALS DURING THE FIRST FIVE MONTHS.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	167,010	208,160	187,190	251,340	198,430	196,730
America.....	101,499	95,638	84,198	81,808	80,346	84,481
Totals.....	268,509	303,798	271,388	333,148	278,776	281,211

DELIVERIES.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	179,510	179,860	151,540	189,640	159,780	154,180
America.....	103,035	101,440	87,192	82,993	83,972	86,389
Totals.....	282,545	280,300	238,732	272,633	243,752	240,569

STOCK JUNE 1.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	157,950	174,700	187,650	179,000	151,450	128,500
America.....	32,153	32,045	36,465	22,968	21,955	27,996
Totals.....	190,103	206,745	224,115	201,968	173,405	156,496

To which have to be added the unsold stocks of the Netherland Trading Company of June 1, 1886:

	1886.	1885.	1884.
Bags.....	291,100	589,000	563,200

AMERICAN MOVEMENT.

	1886.	1885.	1884.	1883.	1882.	1881.
Arrivals, 5 mos.....tons.	101,499	95,638	84,198	81,808	80,346	84,481
Consumption.....	102,786	101,395	87,131	76,670	80,015	76,532
Re-export.....	249	45	61	6,323	3,957	9,857
Total deliveries.....	103,035	101,440	87,192	82,993	83,972	86,389
Stock, June 1.....	32,153	32,045	36,465	22,968	21,955	27,996

India.

Wheat prospects for the growing 1886-7 crop are fair. The last crop, 1885-6, produced 7,739,424 tons, the area under wheat culture being 27,392,762 acres, distributed as under:

	Area, Acres.	Yield in Tons.
Punjab.....	6,957,600	2,693,060
Northwest Provinces and Oude.....	5,240,381	1,847,400
Central Provinces.....	3,902,707	859,753
Bombay and Baroda.....	2,969,539	801,400
Berar.....	808,515	115,502
Bengal.....	850,000	336,920
Rajputana.....	1,500,000	336,000
Central India Native States.....	3,500,000	500,000
Hyderabad.....	1,144,000	114,000
Mysore.....	20,000	2,056
Cashmere.....	500,000	133,333
Totals.....	27,392,762	7,739,424

Following are the figures relating to the indigo situation:

	July, 1886.	1885.	1884.	1883.	1882.
Bengal crop factory maunds.....	109,000	164,000	158,000	150,000	135,000
Madras shipments to Europe, September 1 to June 30, chests.....	11,737	5,784	14,391	10,970	14,623
Deliveries in England first six months.....	8,441	10,621	11,109	10,046	11,133
London stock July 1.....	18,978	15,752	20,317	14,812	19,176
Catalogued in London for the July 12 sale.....	7,530	6,400	9,200	7,040	10,000

Mauritius.

COMPARATIVE SUGAR EXPORTS TO JUNE 7.

To—	1885-6.	1884-5.	1883-4.
United Kingdom.....tons.	16,187	10,832	8,528
France.....	10	43	757
Australia.....	18,716	29,936	40,550
New Zealand.....	6,325	8,428	11,033
Cape of Good Hope.....	3,667	4,209	5,670
Bombay.....	47,676	53,483	36,038
Calcutta.....	3,410	693	.....
United States of America.....	5,881	10,343	9,217
Other places.....	2,441	1,593	1,191
Totals.....	104,313	119,650	112,993

Java.

A cable despatch, dated end of July, states that the government coffee crop now being gathered on the island is estimated not to exceed 743,000 piculs of 134 pounds American. The crops of several plantations were being purchased for American account. Heavy rains have delayed the maturing of the beans, hence the crop is going to be later than usual, especially in the Eastern portion of the island. The Pedang crop, it is believed, will not be over 80,000 piculs.

Philippine Islands.

MANILA, June 8.—The total sugar shipments from the three ports have been as follows:

	1886.	1885.	1884.
To Great Britain.....tons.	15,999	9,355	9,069
United States.....	84,090	57,462	41,528
Sundries.....	10,472	18,232	11,105
Totals.....	110,497	85,049	61,702

Spain.

The *Correspondencia de España* states that in spite of the many severe thunderstorms and some damage done the vines in a good many localities, the general aspect of the vineyards was fine, so that a full vintage is in prospect. The mildew has done less harm than had been apprehended, proprietors displaying timely energy in combating it, and as for the phylloxera, it seems to have made no notable headway except in Catalonia this year, where it has made its appearance with great virulence.

Spain has seldom been so agitated in commercial matters as in July. The Cortes ratified the reciprocity treaty with England, and prolonged the treaties with ten other nations till 1892. All England concedes Spain is a reduction of 1s. 6d. per gallon on Spanish wines between 26° and 30° Sykes, and in return Manchester and other British goods are admitted at the comparatively low duty fixed with the said ten nations under the most favored nation clause; in other words, not only German dry goods will continue flooding Spain for six years to come, but, worse still, English in competition with them. Catalonia, the spinning and weaving province *par excellence*, is almost verging on the point of rebellion, because her people consider themselves sacrificed to the free-traders in the Cortes, who chance to have there a large majority. What caps the climax of their indignation is that the arrangement alluded to applies to the Spanish colonies as much, where so far the Catalans had it all their own way.

Review of the Markets.

Reports for the Month ended August 1.

Butter.—The market has had good support as to choice grades and supplies are very well taken up by demands. Otherwise the tone is about steady. We quote: Creamery, 14½@21c.; State, dairy, 15@17c.; Western, 9@13c.

Cheese.—Offerings have been very much reduced, and for that reason business is not important. The market closed firm and unchanged. We quote: New State factory, best white, 8@8½c.; best colored, 8@8½c.; fine, 7½@7¾c.; fair, 6¾@7¾c.; common, 6¼@6¾c.; Ohio factory fine, 7½@7¾c.; State factory, night skims, 6@6½c.

Coffee.—In Brazil grades the market has been slow, and there has been a disposition to make slight concessions in order to move supplies. Spot transactions have been very meagre, but afloats have changed hands at 8½c. for No. 7. Ordinary, both spot and afloat, has been held very firm at 8½c., and fair was held at the close with more confidence, owing to the poor quality of the new crop. The trade in options has been light. August has sold at 7.60@7.65c., September at 7.70@7.75c., October at 7.75@7.80c., while the other points have not varied five points. The monthly coffee statement of William Scott's Sons is as follows:

Stock in warehouses July 1, 1886.....bags.	443,692
Received since—	
At New York.....bags.	182,973
Baltimore.....	21,714
	204,687

Total supply.....	648,379
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Delivered from warehouses since—	
At New York.....bags.	188,893
Baltimore.....	30,064
New Orleans.....	13,636
Galveston.....	3,298
Charleston.....	2,100
	237,991

Stock in warehouses August 1, 1886—	
At New York.....bags.	333,694
Baltimore.....	58,444
New Orleans.....	20,850

Total stock.....	410,388
Afloat and loading for United States to June 26.....	20,000
Purchased for United States to July 31 (39,000 Santos).....	205,000

Total visible supply.....	635,388
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The mild coffee market has been quiet, and among late transactions were Interior, December sale, at 17½c.; Mandheling at 22c. Interiors afloat are held at 18c., with 17½c. bid. Ankola is selling at 19½c. West India grades have been fairly active and rule steady. We quote: Rio, ordinary cargoes, per pound, 8½c.; fair do. 9½c.; good do. 9½c.; prime do., 10c. Santos, fair to good cargoes, 9½@10½c.; Java, 18½@22½c.; Singapore, 12@14c.; Ceylon, 8@12c.; Maracaibo, 9@12½c.; La Guayra, 8½@11½c.; Jamaica, 7½@11½c.; San Domingo, 7½@7¾c.; Porto Rico,

10@12c.; Central American, 9@13c.; Mexican, 8½@12½c.; Angostura, 9@12½c.; Savanilla, 8½@13½c.; Mocha, 20@22c.

Cotton.—Shippers have been showing more interest in "spot" cotton, and there has been free buying at full figures. At the close, however, business was somewhat checked by holders establishing 1-16c. advance. Late sales aggregate 6,699 bales, of which 4,472 were for export. Middlings closed quoted at 9-9-16@9½c. Options have been moderately active and closing quotations were: August, 9-43@9-44c.; September, 9-41@9-42c.; October, 9-33@9-34c.; November, 9-32c.; December, 9-33@9-34c.; January, 9-43@9-44c.; February, 9-53@9-54c.; March, 9-62@9-63c.; April, 9-72@9-73c.; May, 9-82@9-83c.; June, 9-92@9-93c.

Dry Goods.—The moderate demand which characterized the opening of the month, expended as the month grew older, and the transactions of the past thirty days have aggregated a large figure, cotton and woolen staples closing stronger, and in some instances moving at better values. The business in woolen goods has been larger, principally in the execution of orders of some standing, and the beneficial effects of a curtailed production and a higher wool market have been felt to a very large extent. In soft wool dress fabrics and cloakings the production has been well taken care of, while the stocks of underwear and knit-goods have been gradually diminishing, owing to demands of late trade, while the mills are largely occupied on orders. While flannels have had a wide distribution on orders of previous date, new business has been somewhat moderate, and blankets have been neglected to some extent, previous to the month's auctions, but immediately thereafter this line was quite active. Cotton goods have shown a very satisfactory business in many respects, and while the market opened rather quiet, it has gradually shown more life until it was active at the close. In wide sheetings there has been a steady request for new and duplicate assortments. The chief makes of gingham are sold to the extent of the production for the season. Brown cottons have shown an improved demand and low grades of 40-inch goods have been sought after by converters, and qualities for such purposes are scarce. Bleached cottons have been favored with a steadily increasing demand, so much so that stocks have been pretty well cleared up and values closed with a hardening tendency. Colored cottons are in a very similar position. The printing-cloth market has ruled exceedingly firm at 3½c. for 64x64 cloths and 3c. for 56x60 cloths, and each have had a very fair business, with a relatively larger trade in "irregulars." The movement of prints and printed fabrics has been of very good proportions. Solid colors have had considerable attention, and fine qualities of turkey red and other colors have had a wide sale. Specialties and novelties in dress styles have shared in the movement, as also furniture and decorative styles. The imports of foreign dry goods at this port for the closing week amount to \$2,266,286, showing a decrease of \$513,084 as compared with the previous week, and a decrease of \$66,051 as compared with the corresponding week last year. The total of goods marketed for the closing week was \$2,292,113, or \$25,827 more than the imports. The total imports since January 1, 1886, have been \$66,765,308 against \$55,976,526 for the same time in 1885, or an increase of \$10,788,782.

Drugs and Chemicals.—The drug and chemical market has been quiet, although the demand improved somewhat toward the close. Sales of 40 tons soda ash, \$1.32½@1.35; 300 casks bleaching powder, \$1.50; 125 drums caustic soda, \$2.50; sal soda, 85@90c.; acetic acid, 2½@2½c.; oxalic acid, 6½@6½c.; citric acid, 65@66c.; tartaric acid, 43@45c. for crystals and 44@46c. for powdered; acetate of lime, 1½@1½c. for brown; aloes, 6½@7c. for Cape and 12@12½c. for powdered; alum, \$1.75@1.87½ for lump and \$1.87½@2 for ground; ammonia carbonate, 9c. for English and 9½@9½c. for D. and O.; assafœtida, 10@11c.; arnica flowers, 7@8c.; albumen, 17@17½c. for foreign blood; arsenic, 2½@2½c.; balsam copaiva, 30@33c.; balsam tolu, 32@35c.; balsam Peru, \$1.10@1.20; bichromate of potash, 9½@10½c. for Scotch; borax, 7c. for refined in bbls.; blue vitriol, 4½@4½c.; brimstone, \$21.25@21.50 for seconds; buchu leaves, 6½@10c. for shorts and 26@27c. for longs; cantharides, \$1.00@2 for Russian; camphor, refined, 22½@24c.; castor-oil, 17@18c. in bbls. and cases; cardamoms, 60@75c. for Aleppo and 50c.@\$1 for Malabar; cassia buds, 10½@11c.; camomile flowers, 12@20c. for old and 30@35c. for new German; cutch, 6½@6½c.; chlorate of potash, 16½@16½c. for crystal and 16½c. for powdered; cochineal, 30@31c. for Teneriffe silver; cream tartar, 34½@35c. for crystals and 35@36c. for powdered; gambier, 4½@5½c.; ginger, 12@14c. for Jamaica bleached and 10c. for unbleached; glycerine, quoted at 15@19½c.; Guarana, \$1.37½; iodide of potash, \$2.65@2.73; ipecacuanha, 87½@90c., and powdered, 90c.@\$1; licorice paste, 27@28c. for P. & S., and 30@32c. for Corigliano; manna, 55@60c. for small flake and 55c. for large flake; morphine, \$1.85@2.40 for domestic; opium, \$2.05@3.10 for new, duty paid; oil cloves, \$1.30@1.35; oil cassia, 62@65c.; oil anise, \$1.55; oil lemon, \$1.75@2.50, as to brand; oil sassafras, 34@37c.; oil wintergreen, \$1.70@1.75; oil bergamot, \$2@2.75; oil peppermint, \$3.20@3.75 in tin and \$3.50 in glass; prussiate of potash, 20½c. for American yellow; quicksilver, 46½@47c.; quinine, 50@55c. for German and 55@65c. for American; roots, 4½@4½c. for gentian; Seneca root, 43@45c., and Colombo root, 9@12c.; ginseng, \$1.80@2.30; sarsaparilla, 9@10½c. for Mexican; seeds, 4½@5c. for Trieste brown mustard and 5½@6c. for California yellow; senna, 30c. for Alexandria; shellac, for D. C. and L. B. over and S. under, 17c. per lb.; V. S. O., 13½c. per lb.; I in diamond, 13½c. per lb.; sticklac, —c. per lb.; sugar of lead, 6½@7c. for brown and 12c. for white; Tonka beans, \$1.65@1.70 for Angostura.

Fruits.—Foreign Dried—Raisins have been in light movement, and the market closed in favor of holders. Other fruits are firm and in steady jobbing demand. We quote: Valencia raisins, 7½@8c.; loose muscatel, \$2; London layers, \$2.40; Sultana, 7½@8c.; Ondara layers, 10½c. Almonds—Princess, paper shelled, 24c.; Sicily shelled, 21½@22c.; Jordan, 42c.; Tarragona, 14½@15c.; Ivica, 14c.; Languedoc, 14½c. French sardines, 10@12c. for quarter boxes and 16@18c. for half boxes. Citron, 18½@19c. Currants, 6½c. Figs, 9@14c. Turkey prunes, 3½@3½c.; French prunes, 7@14c. Grenoble walnuts, 14@15c.; French do., 60@7c.; Naples do., 14½c. Sicily filberts, 7½c. Dates, 5½@6½c. for Persian in boxes, and fards, 7@7½c. Brazil nuts, 6½@6½c. Fresh fruits—Apples—Norfolk, per bbl., at \$1.75@2.25; do. Maryland and Delaware, per crate, at 75c. and 90c. Red Astrachan, per bbl., at

\$1.50@2; Jersey, at \$1.25@1.75 per bbl. Huckleberries at 7@8c. per quart; do. Maryland, at 4@5c. per quart. Peaches at \$1@2 for North Carolina per bushel crate, and 50c.@\$1 for Maryland and Delaware per basket. Plums at 3@5c. per quart. Raspberries, at 10@3c. for up-river per cup. Grapes—Delaware, per lb., at 15@20c.; Niagara, South Carolina, per lb., at 10c.; Concord, North Carolina, per lb., 7@8c. Blackberries, at 5@6c. for best, per quart, and 3@4c. for Maryland and Delaware. Pears, at \$2.50@3.50 per crate, and \$2.50@3.50 per bbl. Domestic Dried—Evaporated apples are so scarce that holders can place pretty much their own ideas as to prices upon them. Sun-dried apples are quiet. The whole market is quiet, pending supplies of new. We quote: Apples—Fancy evaporated, 9c.; choice, 8½c.; do. prime, 8c.; fancy North Carolina sliced, 4c.; choice do., 2½@3c.; choice Tennessee quarters, 1½@2c.; State quarters, 2½@3c.; Southern sliced, prime, 1½@2c.; do. common, —c. Peaches—Peeled North Carolina, choice, 11c.; fancy, 12@12½c.; Georgia, choice, 10@11c.; do. prime, 8@9c.; unpeeled halves, 2½@3c.; unpeeled quarters at 2½@2½c.; Delaware evaporated, peeled, —c. Choice pitted cherries, 10@10½c. Evaporated raspberries, 15c.; sun-dried do., 13c. Blackberries—Prime, 6½@7c. Whortleberries, 6c. Plums, 5c.; do. California, evaporated, —c.

Freights.—Berth rates have not only not shown any improvement, but in some directions there is a tendency to further concessions. The offerings of grain charter vessels have been rather forced and it has been almost impossible to place a vessel except at inside rates. Petroleum tonnage is in rather limited in supply, and were there any demand for it rates would almost certainly show an advance. There has been some inquiry for vessels for tobacco, and three charters for the Mediterranean. Deal charters are inactive, but there has been some inquiry for vessels for the lumber trade.

Quotations from New York to United Kingdom and Continental ports:

	Grain.	Oilcake.	Flour.	Sugar.	Provisions.	Cheese.	Beef.	Pork.	Cotton.
Liverpool (steam)	1½	6.3	8.9	10.	10@17.6	17.6-25	2@2.6	1.6@2.	7-64
London (steam)	3½	9.6	12.6	12.6	25	27.6	4.6	3.3	..
Glasgow (steam)	2	8.9	10.	10.	11.3@20.	30.	3.6	2.9	..
Bristol (steam)	3½	10.	12.6	15.	17.6@20.	30.	4.	3.	..
Leith (steam)	3	12.6	13.9	12.6	17.6@20.	25.	4.	3.	..
Hull (steam)	3	10.	12.6	13.9	17.6@20.	25.	4.	3.	..
Newcastle (steam)	3	10.	12.6	13.9	17.6@20.	25.	4.	3.	..
Antwerp (steam)	3½	12.6	15.	15.	17.6@20.	..	4.	3.	..
Hamburg (steam)	50.	12.6	15.	16.3	75pf.	..	75pf.	75pf.	5ad.
Bremen (steam)	60.	12.6	15.	17.6	90pf.	..	30c.	30c.	11-64d
Copenhagen (5 m)	2.3	..	..	20.	..	..	4.	2.9	..
Marseilles (5 m)	3.	..	..	..	30@35.	..	32.6	32.6	..

Cork for orders, sail, 3s. 9d.; steam, 2s. 6d.@2s. 7½d. Direct port, United Kingdom, 3d.@6d. less.

	Refined Petroleum.	Naphtha.	Cases.
Cork and United Kingdom	2.7½@2.10½	2.10½@3.1½	Levant..... 16.
Direct port, United Kingdom	2.3 @2.7½	2.6 @2.9	Adriatic..... 17.
Direct Continent	2.3 @2.7½	2.6 @2.9	Mediterranean. 14@15
Baltic	2.9 @	2.9 @2.10½	..

Flour and Meal.—The market for flour closed firm and under moderate inquiry from shippers and prices have advanced 5@10c. We quote: No grade, \$1.90 @2.15; fine, \$2.10@2.60; supers, \$2.50@2.85; extras No. 2, \$2.75@3.25; extras No. 1, \$3.25@4.; clear bakers', \$3.25@4.; straight bakers', \$4@4.50; patents, \$4.50@5.10; city extras (European) in 140-lb. sacks, \$3.50@3.60; city West Indies, \$4.35; city patent, \$4.50@5.10. Southern flour has sold very fairly steady at easy prices. We quote: fine, \$2.50@2.75; supers, \$2.65@2.85; extras, \$3.25@4.25; Richmond first, \$4.87½@5; Richmond second, \$4.37½@4.10; patents, \$4.50@5.10. Rye flour has been slow of sale and prices have declined a shade. Fine is quoted at \$2.35@2.50 and superfine at \$3.40@3.75. Corn meal is strong and, with light demands, prices are above buyers' views. We quote: Western, \$2.55@2.75 and do. granulated, \$3.25 @3.40; Brandywine, \$2.65@2.95. Bag meal is firm in sympathy with corn. We quote: Coarse, 95c.; fine yellow, \$1.05; white, \$1.05; oil meal; \$2@2.75, and cotton seed meal, \$2@2.25.

Grain.—Wheat options in late transactions were heavier, superinduced by concessions in Chicago and falling off in export demand, but the closing figures indicated an almost entire recovery. Final figures were: August, 85½c.; September, 86½c.; October, 87½c.; November, 88½c.; December, 90½c.; May, 96½c. Chicago closed at 75½c. for August, 77½c. for September and 79½c. for October. Cash wheat has met a moderate inquiry from both shippers and millers, and the only feature of interest that has been developed is suggested by the approximation of No. 2 Chicago and No. 2 red winter, they having been sold at the same time and figure, 86½c. afloat. The transactions comprise 923,000 bushels at 72@87c. for ungraded red, 83½@83½c. for No. 3 red, 80c. for steamer do., 85½@85½c. for No. 2 do. in elevator, 86½@87½c. for do. delivered; No. 2 Chicago was nominal at about 86½c. Liverpool reports dull market at 6s. 7d @6s. 8d. for No. 2 red and 6s. 6d @6s. 7d. for No. 8 spring. Corn options have been irregular on conflicting reports, and closing figures were: July, 50c.; August, 50½c.; September, 51½c.; October, 52½c. Chicago closed at 43½c. for August, 44½c. for September and 45½c. for October. Cash corn has been scarce, but graded No. 2 mixed has varied considerably. The sales are 273,000 bushels at 47@50c. for ungraded and 51c. for No. 2 mixed, closing nomina. at 50½@51c. Liverpool reports steady market at 4s. 2d. Options in oats have ruled firmer under a fair inquiry. Closing quotations were: July, 37½c.; August, 33½c.; September, 34c.; October, 34½c. Chicago closed at 27½c. for August, 29½c. for September and 29½c. for October. Cash oats have been in fair request and the market has rather favored the seller, but closed firmer. The sales are 184,000 bushels at 45c. for No. 1 white, 42@43c. for No. 2 do., 39@41c. for No. 3 do., 38c. for No. 1 mixed, 37@37½c. for No. 2 do., 36½c. for No. 3 do., 35c. for rejected, 38½c. for No. 2 Chicago, 38@40c. for mixed, on track, and 40@47c. for white.

Leather.—Hemlock sole has been more active in response to demands on

both export and home account and considerable business has been transacted at steady prices. Stocks are not excessive, although there is a fair assortment of all grades. We quote: *Hemlock Sole*—Non-acid Buenos Ayres—Light, first selection, 21@22c.; middle do., 22@23c.; heavy do., 22@22½c.; light seconds, 19@20c.; middle do., 19½@20½c.; heavy do., 19½@20c.; damaged, all weights, 17@18c.; non-acid California—light, first selection, 21@21½c.; middle do., 21½@22c.; heavy do., 21½@22c.; light seconds, 19c.; middle do., 19@19½c.; heavy do., 19c.; non-acid common hides—light, first selection, 20c.; middle do., 20½@21½c.; heavy do., 20@21½c.; light seconds, 18@19c.; middle do., 18@19c.; heavy do., 18@18½c.; damaged, all weights, 16@17c.; rejects, 12½@13c.; acid hides of all kinds—light, first selection, 20c.; middle do., 20½@23c.; heavy do., 21@25c.; light seconds, 18½@19c.; middle do., 18@18½c.; heavy do., 18@20c.; damaged, all weights, 15@16c. *Union Tanned*—Slaughter—Light backs, 30½@31c.; middle backs, 30@30½c.; middle backs, heavy, 30@30½c.; seconds backs, 28½@29c.; light crop, 28@29c.; middle crop, 28½c.; bellies, 15@15½c. *Calcutta Buffalo*—Light, 18½@19c.; middle, 17@18½c.; damaged 15@17c.; poor damaged, 12½@13c.

Lumber.—Yard operators have had a business ranging from dull to full as to locality, and while trade is irregular it is probably up to the average. Stocks are not very heavy and first hands are moving some desirable parcels, although prices do not reflect any activity. Lath is in full supply and easy, with sales at \$1.50@2 per M. We quote: Eastern spruce at \$12@15 for random cargoes, \$15.50@17 for special lots; yellow pine at \$18@19.50 for random cargo lots, \$19.50@21 for extra cargo lots, \$17@18 for green flooring boards and \$21@22 for dry do.; white pine at \$14@15 for box boards, \$15@17 for West India shipping lots; \$28@29 for South American shipping.

Metals.—Copper—Contracts for upward of ten million pounds of Lake ingot at 10c., August and September delivery, have been made, while several orders for export at 10c. f. o. b. have been on the market and have not been accepted. Arizona ingot is firmer, because of reduction of output and 9½@9¾c., as to size of lot, is quoted for Baltimore. Pig Iron—The market for American pig has been quiet as to new business toward the close, although there is a liberal movement on old contracts and rates are very steady. Standard brands are quoted as follows: No. 1 X foundry, \$18; No. 2 X foundry, \$17, and gray forge, \$16. Inferior brands about \$17.50 for No. 1 X, \$16@16.50 for No. 2 X and \$15@15.50 for gray forge. Scotch pig remains quiet, with former prices the rule on the small sales making. We quote as follows: \$17.50@17.75 for Eglington, \$18.50@18.75 for Dalmellington, \$18.50 for Ayreson, \$18.50@18.75 for Glengarnock, \$19 for Gartsherrie, \$19.25@19.50 for Summerlee, \$19.50 for Langloan and \$19.75@20 for Coltness. Old rails—Tee rails for nearby delivery are scarce and not to be had at less than \$19.50, with bids of \$19 refused on several lots. Steel rails are quoted at \$20 nominal. Scrap Iron—There is only a moderate demand and yard lots are held at \$19, with bid of \$18 for ship lot refused. Car-wheels are quiet but steady at \$15.50@16. Steel Rails—There is a fair inquiry, but scarcity of offerings for desirable delivery hinders business. Standard sections are firmly held at \$34@35 at works. Pig Lead—The market is quiet and while holders ask 4.90c for common, 4.85c. seems to be the highest paid. Pig Tin—Buyers have been taking only sparingly, and this, coupled with a break in London, has caused a decline of ¼c. on Straits. Sales were made of 30 tons August at 21.85@21.75c., and 15 tons September at 21.75c. Outside there have been sales of 5-ton lots at 21¾c. and jobbing parcels at 21.85@21.90c. cash and 22c. thirty days. English L. & F. was quoted at 22@22½c. and Banca at 22¾c. nominal from store. Tin Plate—The market is without spirit, and with a light demand values are easy. We quote: I. C. charcoal, ½ cross assortment, \$5.15@5.20. We quote the range of prices as follows: Allaway and Calland, \$4.70@5.12½ and \$5.20 for Melyn grade; for each additional X add \$1 and \$1.50 respectively. I. C. coke, \$4.35@4.37½ for B. V. grade; \$4.40@4.42½ for J. B. grade. Charcoal terne, \$4.20@4.22½ for Allaway grade; \$4.30@5.35 for Dean grade, 14x20, and \$8.40@8.45 and \$8.60@8.65 respectively for do. 20x28.

Molasses.—The market for boiling has ruled dull and nominal. The closing sale was at 17½c. for 50 test. Grocery descriptions have ruled dull, the only late sale is of Barbados, at 22c. flat. New Orleans is dull and supplies move slowly at irregular prices. In sugar-house there have been sales of ordinary in bbls., August delivery, at 9½c., and beet-syrup, August delivery, at 11c., vessels to hand. Extra heavy is held at 12c., with some movement at concessions. Straight sugar grades of syrups are quiet at 12@23c. We quote: Porto Rico, 30@38c.; Barbados, 23@25c.; Demerara, 15@17c.; Martinique, 15@17c.; New Orleans, 38c. for best, 36c. for choice, 32@34c. for prime, and low grades, 15@20c. Sugar-house molasses, 10c. for ordinary in hhd., 12c. for extra heavy, and 11c. in bbls. Sugar, 16@17c. for low, 20@22c. for common, 22@23c. for fair, and 24c. for best.

Naval Stores.—While the market as to spirits turpentine is without much change, it is steadier, with merchantable order quoted at 34@34½c. Low grades of rosins are steady and quiet, while better qualities are in fair demand. We quote: Strained at 98c.; good strained at \$1.05; No. 2 (E) at \$1.15; No. 2 (F) at \$1.35; No. 1 (G) at \$1.45; No. 1 (H) at \$1.65; good No. 1 (I) at \$1.95; low pale (K) at \$2.50; pale (M) at \$2.90; extra pale (N) at \$3.15; window glass (W) at \$3.40. Tar quoted at \$1.90@2.40 for Wilmington; pitch quoted at \$1.50@1.60.

Paper.—The past month has developed a trade fully up to the average. The mills, as a rule, are well supplied with contracts, and the production of prime grades is well under the control of orders. The annual meeting of the American Paper Manufacturers' Association was held at Saratoga on the 28th, and was well attended. Writings have been in fair call and prices have held well. Book has been somewhat weak, although prices on prime grades have been firmly held. In news, large contracts have been made with New York dailies at 4½@4¾c. Some of the manilla mills are yet idle, and with restricted production the market is steady. Strawboards are displaying more activity and full combination prices are ruling. Straw wrappings are quiet, although the demand on export account has improved toward the close, but not sufficiently to strengthen prices. We quote: Fine flat caps, 13@15c.; super-fine, 16@18c.; record and ledger, 18@22c.; supersized and calendered book, 7½@10½c.; do. do., extra machine finish, 7@7½c.; do. do., low grade, 6½@

7½c.; news, No. 1, 5@5½c.; do., rag and wood, 4½@5½c.; do., straw, 5½@5¾c.; manillas, No. 1, light weight, 7½@8½c.; do., heavy weight, 6½@7c.; No. 2 manillas, 5@6c.; No. 3 do., 2½@3c.; straw wrapping, heavy weight, 1½@2c.; do. do., light weight, 2½@2¾c.

Petroleum.—The market has been somewhat irregular, but it closed at a decline, final figures for "certificates" being 65½@66c. Refined is quiet, purchaser's views being under quotation, which remains at 6½c. for 70° Abel test. Case oil is in light business, with moderate demands, plain brands being quoted at 8½c. Home trade lots of barreled oil are quoted at 7½@7¾c. for 110° test standard white; 7½@8½c. for 120° test, do.; 8¼@9¼c. for 130° test do.; 8¼@9c. for State test do., and 9¼@9¾c. for 150° test water white. Crude in barrels was quoted at 6c. for Bradford and 6½c. for Parker. Prime city naphtha was quoted at 8½c.

EXPORTS OF REFINED, CRUDE AND NAPHTHA, FROM ALL PORTS, JANUARY 1 TO JULY 31.

	1886.	1885.
From Boston.....gals.	3,115,595	5,395,664
Philadelphia.....	84,507,253	81,199,967
Baltimore.....	9,812,325	6,086,504
Perth Amboy.....	2,166,920	...
Totals.....gals.	99,602,093	72,682,130
From New York.....	222,773,297	208,917,235
Total exports from United States.....	322,375,390	301,600,065

Provisions.—Pork—The few holders are able to sustain very strong prices, and the general look of the market indicates still further advances. Demands are fair. Quotations for job lots: \$10.75 for old mess, \$11.62½@11.87½ for new mess, \$13@14 for family mess, \$13.50@15 for clear back, straight goods (the latter for fancy), \$9.50@10.25 for extra prime. Dressed hogs have been unsettled as to price, but have been in fair demand. Quotations are: 6½@6-9-16c. for bacon averages, 6½c. for 180 lbs. averages, 6½@6¾c. for 160 lbs. averages, 7c. for 120 lbs. averages and 7c. for pigs. City meats, especially shoulders, have been strong as to prices, on reduced stocks and steady demands. Bellies are wanted but are scarce, and pickled bellies, 12 lbs. averages, have sold at 6½c. City pickled shoulders have been quoted at 6½c.; smoked shoulders at 7½c.; pickled hams at 12c. and smoked hams at 12½@13c. Packers are very busy with orders well ahead for middles. Chicago prices closed at 6.65c. for short clear, 6.50c. for short rib and 6.40c. for long clear. Beef closed slow but steady, with city extra India mess at \$11.50@13 in tierces; extra mess in barrels at \$8; packet at \$8.50 for barrels, and plate at \$8.50. Offerings of beef hams are small and full prices prevail, at \$23.50@24 at the West, and \$23.50@24 here. Lard closed at advanced figures, final figures being 7.07c.; October, 6.98c.; November, 6.89c. "Cash" was in light demand. Western steam for prompt delivery sold at 7c. City steam was higher and fairly active, with sales at 6.60c. Refined was quiet, with Continent quoted at 7.20c., and South American at 7.40c.

Starch.—The market for Western corn closed quiet, but prices are steady at 2½@2¾c. for bbls. and 2½c. for boxes. Potato is firm at 3½@3¾c.

Stearine.—Lard stearine has been quiet, with small offerings. Choice city is quoted at 8c. Oleomargarine is firm, with city quoted at 7½c.

Sugar.—Raw—Trade has been dull and consumers are unwilling to make additions to their supplies, either from spot or futures. Fair refining is generally quoted 4½@4 11-16c., and good, 4½@4 13-16c., but the inside figures are perhaps nearer the basis upon which actual business could be transacted. The cargo of centrifugals sold at the close shows that 5½c. cannot be obtained for 96 test, and yet the price paid is a shade better than 5 3-16c. There has been no pressure to sell, but the tendency is in buyers' favor. Philadelphia has taken a cargo of centrifugals at 2¾c., cost and freight, for 96 test, and it is said that there are further sellers at this price. Nothing has transpired in Muscovados, but it would be difficult to sell to any extent at 2 9-16c., cost and freight, for 89 test. Beet has ruled dull and nominal, with no demand or disposition to buy. First offered at 11s. 7½d., and seconds at 9s. Late sales have been Cuba Muscovado, no test given, 4½c.; St. Domingo concrete basis, 80 test, 3 13-16c.; Cuba centrifugals, basis 96½ test, 5½c. Refined has ruled dull and easy, but closed firmer, refiners asking 1-16c. advance on granulated. We quote for export: Cut loaf, \$3.53@3.59; cubes, \$3.39@3.46; crushed, \$3.53@3.59; powdered, \$3.59@3.72; granulated, \$3.27.

Tobacco.—Kentucky has been in light request, with values steady as to prime and easy for inferior grades. Sales for the month aggregate 1,300 hhd., of which 700 were for export. We quote: Common lugs, 3½@5c.; good, 4½@6c.; common leaf, 5½@7½c.; medium, 7@9½c.; good, 9@11c.; fine, 11@13c.; selected, 14@16c. Seed leaf has been in good demand and sales include: Pennsylvania, crop 1881, 12½c.; crop 1883, 11@12c.; Ohio, crop 1885, 5½c.; Pennsylvania Havana, crop 1885, and Pennsylvania, crop 1882, on private terms. We note sales of Havana, 60c. @ \$1.05, and Sumatra, \$1.20@1.50. Late exports have been 2,400 hhd., 191 bales, 1,100 cases: To Genoa, 1,520 hhd.; Glasgow, 163 do.; Bremen, 582 do., 24 bales, 1,059 cases; Liverpool, 1 do., 156 bales, 98 hhd.; London, 25 do.; Antwerp, 5 do.; Haytien ports, 7 do.; Aspinwall, 11 bales, and Hamburg, 40 cases.

MONTHLY STATEMENT OF STOCKS OF SPANISH TOBACCO.

	Havana.	Cuba.	Cienfuegos.	Yara.
Stock on hand July 1, 1886.....bales.	44,624	100	....	167
Received since.....	4,860	....	....	118
Totals.....bales.	49,484	100	....	285
Delivered since.....	4,712	....	....	100
Stock on hand August 1, 1886.....bales.	44,772	100	....	185

Teas.—The market has been somewhat demoralized by auction sales. The demand is irregular, and prices are barely steady. Oolongs and Japans are leading in demand, although then they are not at all active. The result of the late auctions are as follows: 7,364 pkgs. teas, as follows: 205, hyson, 7@19½c.; 432, young hyson, 9@33½c.; 161, imperial, 13@23½c.; 396, gunpowder, 13½@34½c. Ping Suey—483, gunpowder, 16@25½c. Japan—1,824, pan-fired, 18@28c.; 480 basket do., 17@31c.; 517, sun-dried do., 16½@22c.; 224 siftings, 4@9½c.; 544, congou, 16@27c. Oolong—

906, Formosa, 18½@41½c.; 1,035, Amoy, 15@17c.; 95, India and Orange Pekoe, 20@24c.; 5,408 pkgs. Formosa oolong at 22@36c.

Wool.—The demand for Domestic Fleece has been slackened, owing to extreme figures insisted on, but holders retain their confidence and no concessions are made, while supplies are offered sparingly. The country markets are relatively higher than here. Foreign advices continue to favor the selling interest. Late sales have included: Territory at 17@19c.; scoured Texas, 50@58c. lb.; combing, 40c.; XX Ohio, 37c.; medium fleece, 38c.; ¼@¾, unwashed, 30c.; and East India, scoured Texas, washed fleece, scoured medium spring Texas, fine super pulled, super lambs' pulled, super do., Canada do., No. 1 do., shearings, on private terms.

General Notes.

THE aerolite which fell in Washington County, Pa., last September, has been discovered. It is estimated to weigh 200 tons, is the largest on record, and is composed of chromium, nickel, aluminum, copper, magnesium and tin.

MUSTARD plants used to be the terror and disgust of the California wheat-grower. Now they are a source of profit. By an ingenious mechanical harvesting both crops are gathered separate, and the mustard is worth more than the wheat on the same land.

AN extraordinary yield of diamonds, says the London *Mining Journal*, has been obtained in Woods, Moore, Knapton and Morrow's claim, near Inverell, New South Wales; 2,400 stones, weighing 625 carats, have been procured by four men in four weeks, of which 302 carats were washed out of thirty-two loads of dirt. There are some splendid stones in the lot. The Kohinoor claim is still getting a number of diamonds, and has 700 carats ready for market.

IN reference to the new bridge which the Baltimore and Ohio Railroad proposes to build across the Kill von Kull, it is said it will be of iron, with the necessary draws. The plans are nearly completed; they will be submitted to the United States Government, and when approved work will be begun at once. The distance across the Kill at the point where the bridge is to be built is 600 feet. The connection with New York will be by five miles of ferriage. The company proposes to build fast ferry-boats to cover the distance in fifteen minutes.

A new method of manufacturing car-wheels has been tested at Wilkesbarre, Pa., with satisfactory results. By the old method three men could make only eighteen wheels per day of twelve hours. By the new process the same number of men can turn out a perfect wheel every minute, or 720 per day. One of the principal features of the new method is the use of a steel core, instead of one of sand, in casting the wheel. The core is removed by knocking out a centre key, leaving the hole perfectly true, and ready to be put upon the axle at once without dressing or boring.

THE Philadelphia company is arranging to pipe gas into the yards of the Pennsylvania Railroad Company, into a big reservoir that is to be put up there for the purpose of supplying the tanks of engines that are to be built to be run by natural gas. "The scheme is perfectly practicable," said an officer of the Philadelphia company. "It has been said that the gas is so volatile that no tank can be constructed that will hold it. This is all nonsense. We shall demonstrate not only the practicability of confining the gas, but the fact that it may be used as a fuel aboard engines so cheaply that in a short time not a locomotive running into or out of the city will use coal."

The *British Journal of Photography* mentions the fact that a patent for sending pictures by the telegraph wire has recently been taken out. Photography is an essential in the process. Mr. Grimnill, of Kirkmaiden, Wigton, has patented a system of photo-telegraphy, of which the following is a description: The picture is projected in sections, as it were, upon the selenium cell in the circuit of the wires, and so causes a greater or less number of subsidiary currents to be switched on to an incandescent lamp at the receiving end, the brightness of the light following the intensity of the spot of picture thrown upon the selenium. Here the photography is of service. The lamp is focused on to a plate, and its varying intensities fixed upon the photographic tablet.

JAMES M. SWANK, after referring to the proposed increase of the duty on tinplates from one cent to two and one-fourth cents per pound, says: "That we could within a year's time add to our sheet-iron mills the necessary special facilities for producing all the tinplates that the country requires may be doubted, but we could certainly make great progress in this direction in the time mentioned. It is fair to assume

that within a year after a protective duty on tinplates would go into effect the country would be able to produce one-half of the tinplates that it would need. In the meantime two things would have happened: First, the warehouses of New York and other importing cities would have been filled with tinplates which had been imported before the new duty could go into effect, and in anticipation of it, thus guaranteeing consumers against a short supply and extortionate prices in the immediate future; and, second, the temporary enhancement of the price consequent upon the advance in the duty would have had the effect of displacing a large quantity of tinplates by home-made black and galvanized sheet iron, the market for which, for roofing and other purposes, has been very greatly curtailed by the cheapness of foreign tinplates. For this last reason it is not probable that we would, for a few years after the adoption of the new duty, require in any year as many tons of tinplates as we imported in 1885. If Mr. Randall's proposed duty were adopted it is probable that importations of tinplates would be increased before it could go into effect, but that afterward they would greatly decline and would steadily decline from year to year, just as our importations of steel rails declined after the country fairly got to work making its own steel rails."

THE Acting Secretary of the Treasury on July 19 issued the one hundred and thirty-ninth call for the redemption of bonds. The call is for \$4,000,000 of the 3 per cent. loan of 1882, and notice is given that the principal and accrued interest of the bonds designated will be paid at the Treasury of the United States, in the city of Washington, on the 1st day of September, 1886, and that the interest on said bonds will cease on that day. Following is a description of the bonds: Three-per-cent. bonds issued under the Act of Congress approved July 12, 1882, and numbered as follows: \$50, original No. 133 to original No. 135, both inclusive; \$100, original No. 1,730 to original No. 1,812, both inclusive; \$500, original No. 787 to original No. 824, both inclusive; \$1,000, original No. 5,524 to original No. 5,962, both inclusive; \$10,000, original No. 12,612 to original No. 12,965, both inclusive, and original No. 23,738 to original No. 23,747, both inclusive; total, \$4,000,000. The bonds described above are either bonds of the "original" issue, which have but one serial number at each end, or "substitute" bonds, which may be distinguished by the double set of numbers, which are marked plainly "original numbers" and "substitute numbers." All of the bonds of this loan may be called by the original numbers only. Many of the bonds originally included in the above numbers have been transferred or exchanged into other denominations on "waiver," the original numbers being cancelled, and leaving outstanding the apparent amount above stated.

At a meeting in London, July 7, of the British and Colonial Chambers of Commerce, a resolution in favor of remonetizing silver in Great Britain was carried, after a long and animated discussion, by a vote of twenty-eight to fifteen. Mr. Crump, of the London *Times*, denounced the silver party of the United States as being controlled by Nevada silver miners in alliance with a "Washington ring." Mr. Frewen replied that it was a party made up of Western wheat-growers and Southern cotton planters. Two members of the chambers, from India, opposed the resolution, on the ground that the lower silver fell the greater would be the stimulus to the Indian exports of cotton, wheat, corn, hides and all agricultural staples. Another member of the chambers, a merchant in the India trade, argued that England had other interests to look after besides India, and that however much that dependency might be profiting from the fall in silver, there were greater British interests which required that silver should be remonetized in England. Two London bankers spoke, one, Mr. Gibbs, in favor of silver, and the other, Sir R. N. Fowler, M. P., against it.

THE gross receipts of the India railways increased 12 per cent., and their excess of receipts above working expenses increased 18 per cent. during the last half of the calendar year 1885, as compared with the last half of 1884. Nearly the whole of this gain is for the benefit of the Indian Government, as the owner of some of the roads and the guarantor of certain rates of dividends upon the other roads. The gain is attributed, in part to the increased movements of wheat, but it is also shown in the carrying of passengers and of other merchandise besides wheat. The prosperity of the India railroads is in marked contrast with the falling off in both the gross and net income

of the English railways. If India may properly be considered as a commercial country, as in many aspects it may well be, it is about the only part of the commercial world in which there is any appearance of activity and prosperity.

MR. A. H. BAUER, of Baltimore, has succeeded in equipping a street car weighing 5,400 pounds and twenty feet long, with storage batteries so that it ran for two months and gave the greatest satisfaction. The track is one-eighth of a mile long, and starts out with a grade of one in twenty, and contains a curve of forty-five feet radius. The motor apparatus is all concealed from sight, but easily reached and attended to. It can be run with much less expense than is entailed by horse-power.

THE Lahore *Civil and Military Gazette* states that the Indian Government is considering the advisability of incurring a further outlay on the petroleum works near Sibi. The borings were begun about two years ago, and oil has been frequently struck at a depth of about 500 feet, but the supply seldom lasts more than a few weeks. The question is now whether a boring should be continued to the depth of 1,000 feet, in the hope of obtaining a steady flow of oil.

It has been decided to inaugurate on June 1, 1887, in the machinery buildings and gardens of the Lima Exhibition, under the auspices of the government of Peru and with the co-operation of the Administrative Society of the Lima Exhibition and the Special School of Mines, a mineral exhibition, the principal object of which is to make known to the world the great mineralogical wealth of Peru. All objects intended for the exhibition will be exempt from every kind of fiscal and municipal duties.

THE *Australian Times and Anglo-New Zealander* says that the New South Wales diamond fields bid fair to rival those of Brazil and South Africa. An extraordinary yield has been obtained from the neighborhood of Inverell, 2,400 stones, weighing 625 carats, having been procured by four men in four weeks. Of these 302 carats were washed out of 32 loads of dirt. There are some splendid stones in the lot. The Kohinoor claim is still getting a number of diamonds, and had 700 carats ready for market in April.

THE London *Economist* gives a table of coinages of silver in 1885, both full tender and subsidiary, but exclusive of recoinage of worn and defaced subsidiary silver coins. The aggregate footings is \$75,804,005. But the table is confined to the mints in Europe, Australia, the United States, Japan and India. It very properly does not include Mexico, although its coinage of silver dollars is very large. Very few of these dollars have any monetary circulation, but are merely a form of silver bullion made convenient for export.

THE subsidiary coinage out of new silver during 1885 was, in England, \$2,612,850, and in the Australian colony mints, \$400,795, in addition to which there was minted from worn and defaced silver coins melted down in England, \$1,025,000, and in Australia, \$58,136. The silver coinage of Japan during 1885 was \$5,869,545, and of India, \$28,950,000, so that of the total Indian silver import of 1885 about \$23,000,000 must have been absorbed in ornaments, which seems a large sum, but it is only about eight cents per capita of the Indian population.

It is said that the great glacier of Alaska is moving at the rate of a quarter of a mile per annum toward the sea. The front presents a wall of ice some five hundred feet in thickness, its breadth varies from three to ten miles and it is about 150 miles long. Almost every quarter of an hour hundreds of tons of ice, in large blocks, fall into the sea, which they agitate in the most violent manner, the waves being such as to toss about the largest vessels that approach the glacier as if they were small boats. The ice is extremely pure and dazzling to the eye, and has tints of the lightest blue as well as of the deepest indigo. The top is very rough and broken, forming small hills and even chains of mountains in miniature.

In Lincoln County, Nevada, on the Rio Virgin, there is a deposit of pure rock salt that is exposed for the length of two miles, a width of half a mile and of unknown depth. In places cañons are cut through it to a depth of sixty feet. It is covered in some places by basaltic rock and volcanic tufa. The deposit has been traced on the surface for nine miles. It is so solid that it must be blasted like rock, and so pure and transparent that print can be read through blocks of it a foot thick. At Sands Springs, Churchill County, there is a deposit of rock

salt fourteen feet in thickness, free from any particle of foreign substance, which can be quarried at the rate of five tons a day to the man. The great Humboldt salt-field is about fifteen miles long by six wide.

THE State Government of Jalisco, Mexico, lately spent \$50,000 for water-works at Guadalajara, the capital. Also \$50,000 for electric-light plants, \$10,000 in artesian wells, \$8,000 in parks and garden ornamentations, \$6,000 in chairs for the Teatro Degollado, \$4,000 in engines and pumps, and about \$3,000 for arms, clothing, &c., for a police force to guard the same.

Catalogues and Price-Lists.

TO READERS.

THE Catalogues and Price-Lists herewith noticed are valuable for reference. In sending for such lists our readers should mention the date of issue and the page number of THE MAIL in which they are noted.

THOMAS W. JONES, New York, U. S. A.—Illustrated catalogue and price-list of weather vanes, tower ornaments, finials, church crosses and emblematic signs.

R. H. SMITH MANUFACTURING COMPANY, Springfield, Mass., U. S. A.—Catalogue and price-list, with illustrations, of rubber and metal stamps, metal-bodied rubber type, &c.

HENRY SEYMOUR CUTLERY COMPANY, Holyoke, Mass., U. S. A.—Illustrated price-list and catalogue of shears, scissors, &c.

BLACK & CLAWSON COMPANY, Hamilton, Ohio, U. S. A.—Illustrated and descriptive catalogue of paper-making machinery.

E. W. BLISS COMPANY, Brooklyn, N. Y., U. S. A.—Catalogue and price-list, 212 pages, handsomely printed and illustrated, of presses, dies and special machinery, for working sheet-metal. Bound in russia leather.

HAMMACHER, SCHLEMMER & Co., New York, U. S. A.—An illustrated and descriptive price-list and catalogue, 406 pages, of cabinet and piano makers' hardware tools, upholstery goods and trimmings. A very comprehensive publication, handsomely printed and got out in an edition of several thousand copies.

P. PRIVIBIL, New York, U. S. A.—Catalogue and price-list of shalting, wood-working, brass-finishing and special machinery.

TARR & WENSON, Gloucester, Mass., U. S. A.—Testimonial circular, twelve pages, of patent copper paint, or substitute for metal sheathing for vessels.

MCCOLLUM & PARR (successors to John McCollum), New York, U. S. A.—Illustrated catalogue, forty pages, of bakers' machinery and tools, printed in photographic ink, illustrations and letterpress of the highest character and presswork admirable.

W. D. WILMARTH & Co., Attleboro, Mass., U. S. A.—Price-list, in Spanish, of coffin trimmings; a very complete list.

Business Notices.

THE York Manufacturing Company, manufacturer of the Jarman ice-making and refrigerating machine, has had for the past three months one of its ten-ton refrigerating apparatuses running in Baltimore, and it is taking care, each day, of fifty beeves put in at blood heat. This machine condenses from ten to twelve gallons per minute and only requires about one ton of coal each twenty-four hours, requiring only 120 pounds of ammonia for the season. By the use of a patent pipe and piston great economy in the use of ammonia is secured, as no amount of consequence can escape. Parties desiring further information will be supplied with full particulars by writing to the address as shown in the company's advertisement elsewhere in this paper.

THE volume of the foreign trade of this country has rather increased than diminished during the past few years. This has been the case especially in improved machinery of all kinds, the low prices prevailing in the United States having induced the energetic machinery men to seek foreign markets, and they have succeeded so well that they are making special arrangements to go into it on a much larger scale. Among the large manufacturers who have taken advantage of these conditions and made themselves felt in foreign markets is the Egan Company, of Cincinnati, Ohio, builder of improved wood-working machinery. The foreign trade of this company has grown to large proportions, until it now constitutes fully one-eighth of its entire manufacture. Foreign users have in most cases been buying English goods, but the improved wood-working machines as manufactured by the Americans are so far superior that they are glad to pay a little more for them. The Egan Company is perfecting its arrangements in foreign countries, so that it will be much more able to place its goods in foreign markets at figures to compete with any manufacturers of this class of machinery in the world.

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Engineering and Machinery.

The Buffalo Duplex Steam-Pump.

THE duplex movement in steam-pumps has always possessed an interest from a mechanical standpoint, and fine results have been obtained by its adoption. In the pump of which an illustration is presented not only is the duplex theory fully exemplified, but an admirable valve motion is adopted, by which any concussion, or jar, or noise is entirely prevented.

Two steam-pumps, practically, are placed side by side, and so arranged as to act reciprocally upon the steam-valves of each other.

The one piston acts to give steam to the other, after which it completes its own stroke and waits for its valve in turn to be acted on before it can renew its motion. The slight pause allows all the water-valves to seat quietly, and thus prevents anything like harshness or concussion of action.

As one of the steam-valves by this arrangement must always be open, there can be no dead point and consequently no jar, and the pump is always ready to start when steam is admitted, and nothing is necessary to be done but to simply open or close the throttle-valve. This arrangement is the perfection of simplicity in its own action, the operation of each pump being dependent upon its counterpart, while each is directly and arbitrarily dependent on the motive-power of it all, the steam, and the whole is operated by one simple throttle.

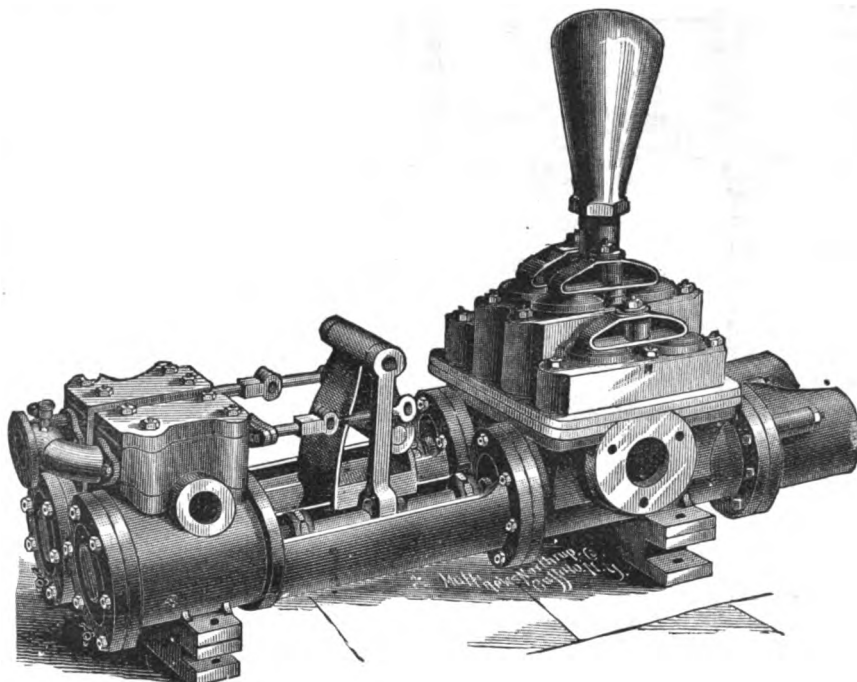
In the matter of comparison it is seen, of course, that the duplex pump, being, as stated, in fact two steam-pumps working side by side, only taking steam from one valve and discharging water into one pipe, has a double capacity per minute of any single-cylinder steam-pump of same diameter of plunger, and that to possess the same capacity of service a single-cylinder pump must have a plunger or water piston of twice the area of one of the plungers of a duplex pump.

The Buffalo duplex steam-pumps have been on the market and in service long enough to afford opportunity for satisfactory investigation of any claims that their manufacturers make as to capacity and economy of space occupied, or steam used. They are very compactly and substantially constructed. All working parts are made extra strong and of lasting material. The parts are also made interchangeable, so that in case of accident to any part or by reason of wear a replacement is necessary, the parts can be duplicated at once. The water pistons are made of brass, or suitably packed for hot or cold

water or other liquids, adjustable to any pressure and always tight. The steam-piston has elastic rings and the water plunger works in a metallic sleeve, and either can be removed or repaired without disseminating the pump. The Buffalo duplex steam-pumps are made by the Volker & Felthousen Manufacturing Company.

Las Bombas de Vapor Gemelas Modelo Buffalo.

LAS bombas de vapor gemelas modelo Buffalo son bombas de doble efecto; tienen un movimiento de válvula que previene el sacudimiento, roce y ruido. Hé aquí la descripción de como está construida aquella bomba: Se compone efectivamente de dos bombas de vapor, la una al costado de la otra y arregladas de tal manera que recíprocamente obren sobre las válvulas de vapor mútuas. El émbolo de la una conduce vapor á la otra y luego completa su propio golpe aguardando en su turno que su válvula reciba su impulsión ántes de que pueda renovar su mocion. El corto intervalo permite á todas las válvulas de agua que se asienten quietamente, con lo que se evita toda clase de aspereza ó sacudimiento de accion. Es sumamente sencillo este arreglo, puesto que la funcion de cada bomba depende de su duplicado, mientras que cada una depende directa y arbitrariamente de la fuerza motriz, el vapor, operándose el conjunto por medio de una sola válvula de cuello. Como



THE BUFFALO DUPLEX STEAM-PUMP.

quiera que la bomba siendo de doble efecto ó más bien componiéndose de dos bombas de vapor que funcionan una al lado de la otra—solo toma el vapor de una válvula y descarga el agua en un solo tubo, posee la doble capacidad por minuto de toda bomba de vapor de un cilindro del mismo diámetro de émbolo sólido. Para que una bomba sencilla pueda prestar, igual servicio, necesitará un émbolo sólido ó de agua que tenga una superficie doble de la que tienen los émbolos de una bomba de doble efecto. Todas las piezas que funcionan en esa bomba son de gran resistencia y hechas de material duradero. Las piezas son además permutables, de manera que en caso de accidente ó de haberse gastado por el uso, son de fácil reemplazo. Los émbolos de agua están hechos de laton y convenientemente empaquetados para agua caliente ó fria ú otros líquidos, ajustables á cualquier presion y á prueba de agua. El émbolo de vapor está provisto de anillos elásticos, mientras que el émbolo sólido funciona dentro de un dedal largo metálico pudiéndose quitar y reparar sin que se desmonte la bomba.

Los fabrica la compañía manufacturera the Volker & Felthousen Manufacturing Company.

Improved Portable Mill.

MUNSON BROTHERS have attained a high reputation for the manufacture of improved portable mills for grinding wheat, maize and all other kinds of grain, spices, &c., and the sectional illustration herewith presented, with the accompanying illustration, will give the reader a good idea of one of their double-gearred mills. Referring to the cut, *A* represents a cast-iron frame, on the upper part of which is a cylindrical shell, *B*, to receive the runner or understone, *R*. This shell is of larger dimensions than the stone, so as to leave a space all around and underneath the stone. The shell has its upper edge made perfectly smooth and even, so that all parts of its surface will be in the same plane. In the lower part of the frame is a horizontal driving-shaft, with a bevel wheel which gears into a bevel pinion on a spindle, the lower end of which is stepped in a socket, *D*, the upper end of which has a flange around it. This socket is fitted with an adjustable box, which rests upon a lever supported by a nut and screw, by which means the stones may be made to run at a greater or less distance from each other to vary the fineness of the flour. The spindle *C* is provided with a collar, *L*, Figure 2, which is fitted within a box, *J*, attached to the under side of the shell. This box is of cylindrical form, concentric with the shell, and within it there are placed bearings, which are adjusted snugly against the collar by keys, screws or other means. The collar is hollow and opened at its lower end, having a space all around between it and the spindle. The box is provided with a central vertical tube, *K*, around which the collar works, the tube passing up between the collar and the body of the spindle.

The driver is fitted on the upper part of the spindle and, like the clearer, secured to the spindle by a feather and groove. The driver rests on the eye *Q* and has two arms projecting from the opposite sides, as shown in Fig. 3. The arms are rounded at their face sides or bearing surfaces, the curvatures being in a vertical plane. The arms of the driver fit within recesses of a shell, which is secured concentrically within the runner, and has a pendant-bearing which rests upon the apex of the spindle. The dandel *S* is attached to the upper surface of the eye. *T* is a cast metal cylindrical cap, in which the upper stone is secured by set-screws. This cap is turned true at its lower part, so that it may fit into the shell, the cap being provided with a shoulder or flange all around it, which flange is parallel with the lower edge of the cap. The stone has an eye made in it centrally, and the cap is secured in proper position by means of screw rods and nuts, the rods being attached at the shell and passing through eyes at the outer side of the cap. On the cap a hopper frame is placed, containing the hopper and shoe, arranged as usual. The runner is, in consequence of the arrangement of the driver relatively with the apex of the spindle, allowed to adjust itself, so that the parallelism of the faces of the two stones is preserved as the stone rotates. The spindle is always kept properly lubricated, as oil may be poured into the box at any time, and the oil within the box is retained therein, in consequence of the perforations in the upper part of the collar. These perforations cause the oil, which may have a tendency to rise in the space between the tube and the collar, to pass through the holes into the box, instead of passing over the top of the tube, which extends above the holes of perforation.

This mill has been extensively used for reducing middlings. The

stones are of the finest quality of "old stock" and are supplied with a silent feed attachment. Although constructed as an under-runner mill with the understone hung on a sensitive point or cock-head spindle, so that it is perfectly adjustable and automatic, it can be supplied with the understone rigid and stiff on the spindle.

Molino Portátil Perfeccionado.

EL adjunto grabado ilustra en seccion un molino portátil de doble engranaje para la molienda de toda clase de granos, especias, &c. El armazon de hierro *A* sirve de soporte para la caja *B* que contiene las muelas. El eje motor horizontal está provisto de una rueda en ángulo en su extremidad que engrana con un pifion cónico en el huso; cada extremidad inferior esá colocada en un cepo provisto de caja ajustable que permite que se regule la distancia entre las muelas, con lo que se varia el grado á que se quiere desmenuzar el producto. La disposicion del eje motor en su accion sobre las

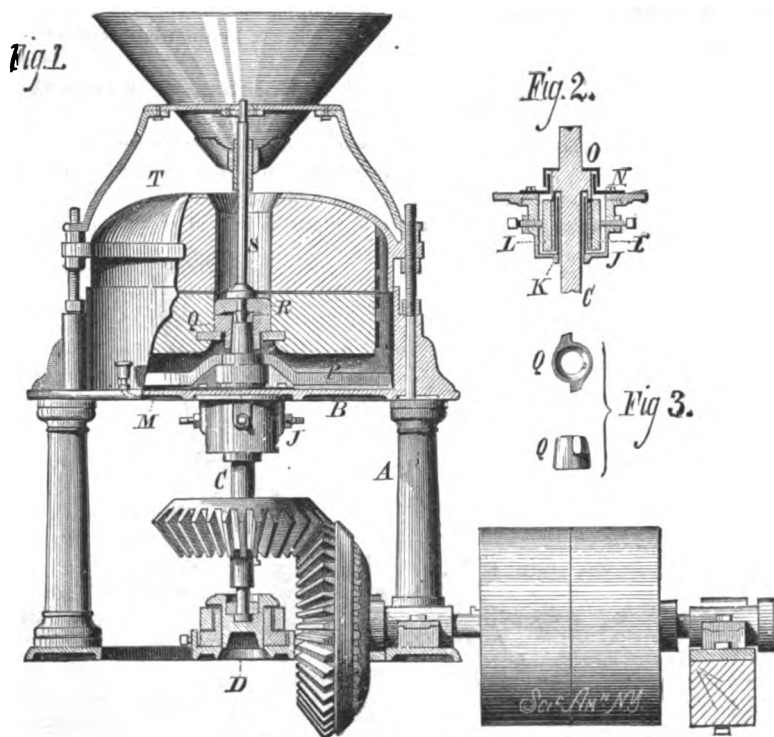
demás piezas permite que la volandera se ajuste de tal manera que las superficies de ambas muelas queden paralelas siempre mientras siga girando la volandera. El huso tambien queda bien aceitado, continuamente, sin que pueda haber goteo. Es de grande utilidad tambien ese molino para la molienda de pinturas, yeso y otros artículos semejantes.

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Combined Hand-Planer and Rabbeting Machine.

AMONG the new machines lately put upon the market is a combined buzz or hand-planer and rabbeting-machine, with body cast in one piece, and proof against straining or twisting, however uneven or unsteady the floor on which it is placed. The machine is adapted to beveling, squaring, smoothing, tonguing, grooving, molding and planing out of

wind. Both tables are adjustable up and down in such a manner that their edges always remain close to the knives, irrespective of the depth of cut to which they are set. By an independent adjustment both tables can also be moved back or away from the cutter-head to give room for projecting molding cutters, &c., and to give access to the knives. The range of vertical adjustment is such that the tables can be raised a half inch or more above the cutter-head, to allow great latitude in the use of molding cutters. By another adjustment the tables can also be set to plane slightly hollow, so that when stuff is glued up it will be extra tight at the ends and less liable to open. An adjustable square and mitre gauge is provided, and a pressure piece with finger protector for pressing stuff against the gauge. When the machine is to be used for all of the purposes named the cutter-head is provided with *T* slots and bolts for holding molding cutters, &c., and with a scoring knife at one end to cut the end of the rabbet. An overhanging bracket is also provided to support the work while being rabbeted. This scoring knife and bracket, which are essential to good work, are lacking on most of the machines that are sent out to do rabbeting. To set the machine for rabbeting, the back table is placed level with the top of the cutting cylinder, the front table as much lower as the depth of the rabbet, the gauge as far from the left-hand end of knives as the rabbet is to be wide, and the scoring knife to project $\frac{1}{4}$ inch beyond the cutting cylinder. Proceed as with ordinary planing. This machine is made in two sizes, and with or without *T* slots and rabbeting attachment. The smaller size has twelve $\frac{1}{4}$ -inch knives and 7-foot table. The larger size has eighteen $\frac{1}{4}$ -inch knives and 7-foot table.



DOUBLE-GEARED PORTABLE MILL.

Iron Turbine Wind-Engine.

AMERICAN manufacturers have attained pre-eminence in the production of machines for utilizing air as a motive-power, and various designs of wind-engines have been brought before the public. Each of these has its individual features, and in almost every instance very satisfactory results have been obtained, so that the various forms of construction present an opportunity for selection which buyers will readily appreciate. One of the most approved wind-engines is the "Iron Turbine," manufactured by Mast, Foos & Co., and herewith illustrated. This engine is made entirely of iron. The wheel and vane are well bound and braced with the best quality of wrought bar iron, so well put together as to withstand the severest winds. The turbine-shaped buckets are solid and smooth, losing nothing by friction, and, curved as they are, do not lose the resistance as soon as receiving the current of wind, but accord with the principle that a current of water following a curved surface in its descent, though much greater in actual distance than the gravitating curves, will reach a given horizontal plane in the same time, so that the wind does not lose its force upon the bucket in its first contact, but like a stream of water follows the curve, still using its momentum till its escape from the wheel. The buckets are firmly bolted to the flattened end of the iron pipe, forming the spoke of the wheel, the other end being screwed into the hub. The buckets are laterally and diagonally braced to each other, the whole making a solid and substantial wheel.

The hole in the wheel-hub is square, fitted to and secured to the square main shaft, by set-screws and pins, thus preventing the wheel from ever turning on the shaft. The journal-box of the main shaft is 11 inches long, and lined inside with babbitt-metal, with a recess in the centre for holding oil. The pitman is connected with the crank-wheel on the main shaft by an adjustable brass box, which is supplied with oil by a glass self-oiler, which holds a week's supply of oil. The motion is transferred from the main shaft by the pitman and elbow, which almost entirely does away with side vibration in the stroke of the pump, and furnishes a very convenient arrangement for changing the length of the stroke. The elbow is connected to the pump-rod by two steel set-screws, fitted to a loose collar on the pump-rod, forming a universal joint, and tapered to take up all lost motion caused by wear. The pump-rod passes down through the turntable, intermediate and bed-plate to the wooden pump-rod. The bed-plate is bolted securely to the top of the derrick, the intermediate fitted to it, the stem of the turntable passing down through it and the bed-plate, and fastened by collar and set-screw, the turntable and intermediate revolving independently of each other in either direction. The wheel being placed $5\frac{1}{2}$ inches off the centre of the turntable, the extra pressure against the wheel during a storm forces or shifts it around parallel with the vane and out of wind. The vane is hung in the socket of the intermediate, and is connected by a rod to an eccentric, which in turn is connected to the turntable by an upright bar, and by its weight, with the leverage obtained by the peculiar arrangement of the eccentric, holds the wheel into wind until it is forced out of wind, when, by extra pressure, it brings it back into position, thus making the engine entirely self-regulating in time of storms, without the use of weights or a regulating vane. The pull-out chain is attached to the vane shaft, passing through a pulley attached to the turntable, under the pulley on the brake-lever, up over the pulley on the eccentric and down through a slot in the pitman and through the centre of the gas-pipe to the lever on the derrick near the ground.

Complaints have been made that some windmills run equally well when out as when in wind. To obviate this difficulty the turbine is provided with a brake, operated by the pull-out chain. A broad wheel is bolted to the spider, a lever is attached to the engine, having on one end a pad which acts on the brake-wheel, and on the other a pulley, under which the chain passes, which effectually prevents any revolution or rocking of the wheel when pulled out of wind.

Wind-engines are invaluable on farms, plantations and stock and

dairy farms. They supply water when otherwise it would be impossible to take the time or secure the help needed for the purpose, and they are invaluable for suburban residences and institutions where a steady supply of water is needed, but where waterworks do not exist. They are also useful in supplying power to small machines and their value can scarcely be understood until they have been put in operation.

Maquina de Viento en Forma de Turbina de Hierro.

Lo que se ha dicho de otras máquinas ó molinos de viento de fabricación americana en lo que se refiere á los perfeccionamientos hechos y la perfeccion de sus piezas se aplica con tanta razon á la que sale de los talleres de los Señores Mast, Foos y Cia. y que ilustramos. Las sobresalientes prendas que posee ese molino se comprenderán fácilmente. Está hecha enteramente de hierro esa máquina; los cubos en forma de turbina son sólidos y lisos, no perdiendo nada por el roce. Como quiera que la rueda se halla colocada á distancia de $5\frac{1}{2}$ pulgadas del centro de la plataforma giratoria una presion extraordinaria resultando de un temporal la hace girar forzosamente hasta que esté en posicion paralela con la veleta y fuera del viento. Hay además un mecanismo particular que hace que la rueda vuelva á tomar su posicion anterior tan pronto como cese la presion extraordinaria con lo que se regula automáticamente la máquina durante un temporal.



IRON TURBINE WIND-ENGINE.

Eiserne Turbinen Windmaschine.

WAS wir über andere Windmaschinen amerikanischen Machwerks erwähnt haben in so fern es sich um Verbesserungen und Vervollkommenung in allen Theilen handelt, findet auch seine Anwendung auf die eisernen Turbinen Windmaschine, welche die Herren Mast, Foos & Co. herstellen, die wir beigegeben durch Holzschnitt veranschaulichen. Die grossen Verdienste dieser Maschine wird man leicht erkennen. Dieselbe besteht ganz aus Eisen und die Eimer, welche Turbinengestalt besitzen, sind solide und glatt, so dass durch Reibung Nichts eingebüsst wird. Da das Rad $5\frac{1}{2}$ Zoll von dem Centrum der Drehscheibe absteht, so forciert extra Druck gegen das Rad in einem Sturme dieselbe herum in eine Lage, welche parallel mit der Wetterfahne steht und dadurch ausser dem Winde. Dabe,

giebt es eine besondere Vorkehrung, die bewirkt dass bei ausseri gewöhnlichem Druck das Rad in seine frühere Stellung zurück gedrängt wird, woraus sich ergibt, dass in einem Sturme die Maschine selbstregulirend wirkt.

Submarine Torpedo Boat.

TESTS of a new submarine torpedo boat have recently been made in the Hudson River, it is claimed with satisfactory results. The boat is 30 feet long, $8\frac{1}{2}$ feet beam and $7\frac{1}{2}$ feet deep. The bow and stern taper off from amidships, and the forward end of the vessel is surmounted by a dome 12 inches high, which is set with glass and just large enough for the pilot to get his head into. Admission to the boat is through a circular scuttle abaft of the dome. At the stern there is a propeller and a rudder of ordinary fashion, and two horizontal rudders with which the boat may be deflected up or down. The interior is half filled with machinery and mechanical devices, including a powerful little Westinghouse engine. Compressed air is stored in six-inch pipes running around the interior, and arrangements are made by which air may be supplied by chemicals. A gauge registers the depth of the vessel beneath the surface. Light is furnished by an incandescent electric lamp. The boat was started up the river and had not gone a hundred feet before it dipped its bow into the water and gradually slid out of sight beneath the surface, reappearing about a quarter of a mile distant. The boat reached a depth of forty feet and attained a fair rate of speed. The torpedo portion of the experiment was not tried. It is designed to use two torpedoes attached together by a chain and fastened to corked magnets, which will attach themselves to the iron or steel sheathing of a vessel to be destroyed. They are to be fired by electricity after the torpedo boat has reached a safe distance.

"Leffel Improved" Iron Windmill.

MUCH has been said about utilizing the force of the wind as a motive-power, and many devices intended to carry out this principle have been brought into operation. It is well understood, however, that wind-engines of American manufacture have attained the highest degree of perfection for machines of their class, and for this reason readers of THE MAIL will be interested in the description of the Leffel improved iron windmill, illustrated on this page and manufactured by the Springfield Machine Company. In the construction of this engine three essential qualities have been carefully combined, viz., simplicity, power and durability. The bucket of this engine is so constructed as to get the full power of the wind without clogging or breaking its force on the inside edge of the bucket, as the latter travels at nearly the same rate of speed as the other edge. The

buckets are about three feet long by two feet wide and are made of the best sheet-iron, fastened securely to curved iron ribs, and bolted firmly to a double set of $1\frac{1}{2}$ x 5-16 inch iron arms, which are bolted to a malleable iron cone and spider hub. The cone hub comes back over a 16-inch babbitted box, and is balanced to run perfectly free and easy and without unnecessary friction. It is simply but durably braced, and as the wheel has a double set of arms, connected at the ends, it forms a double brace of itself. The wheel is mounted on a malleable iron turntable which is perfectly balanced by means of anti-friction wheels and washers, and is thus at all times enabled to govern itself with great ease. This turntable fits accurately into the

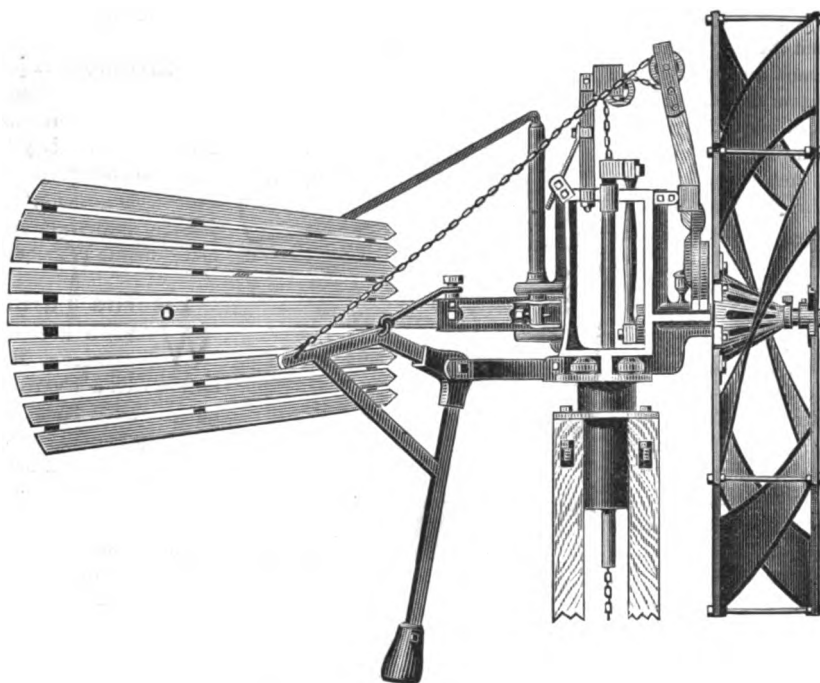
bed-plate, which is also made of malleable iron. The crank-shaft is made from patent polished steel shafting, an inch and a quarter in diameter, and the cone, spider and crank are attached to it by means of hardened set-screws and lock-nuts, the whole being provided with a 16-inch bearing, which is babbitted from one end to the other. The governor arm is made of heavy wrought iron riveted to a malleable iron hinge, and is provided with an adjustable balance-weight, which can be raised or lowered according to the amount of work required of the engine. The tail hinge is also made of heavy malleable iron, and is provided with large rubber cushions, which prevent sudden jars in heavy gales. This engine is light-running and at the same time a powerful wind-motor, adapted for use in any climate, as it is not affected in any way by either dry or moist weather. It is an engine adapted for use on stock farms for pumping water, and for all purposes where cheap power is required.

El Molino de Viento Patente de Leffel Perfeccionado.

LOS fabricantes de molinos ó máquinas de viento en los Estados Unidos se han distinguido desde hace tiempo por la excelencia de sus productos granjeándose alto renombre en este ramo de manufactura. El sin número de perfeccionamientos que se han hecho han sido inspirados por el deseo de simplificar esa clase de maquinaria, de aumentar la fuerza motriz y darle la mayor resistencia. Son precisamente esas prendas que se ha tratado de combinar en las máquinas patente de Leffel que hoy ilustramos. Se ha construido para ella el cubo de tal manera que coja la más amplia fuerza del viento sin que se encoja ó neutralice en el borde interior del cubo, girando este con casi tanta velocidad como el borde exterior. Esta poderosa rueda se halla montada en una *plataforma giratoria de hierro maleable* perfectamente

equilibrada por medio de ruedas para disminuir el rozamiento y volanderas con lo que se gobierna automáticamente con la mayor facilidad. Esa plataforma giratoria cabe exactamente en la plancha de cama también hecha de hierro maleable. El árbol de cigüeña está hecho de acero de patente pulido y tiene un diámetro de pulgada y cuarto y el cono, prensa-estopas exterior y cigüeña se hallan asegurados á él por medio de tornillos de presión endurecidos y tuercas y el todo está provisto de unos cojinetes de 16 pulgadas forradas enteramente de metal babbitt. El brazo del regulador está hecho de hierro labrado sólido remachado á un gozne de hierro maleable y provisto de un contrapeso ajustable que puede alzarse y bajarse según la cantidad de trabajo á que se desee someter la máquina. El gozne trasero está igualmente hecho de hierro maleable sólido y provisto de grandes chumaceras de goma elástica que impiden el que durante un temporal

haya repentinos sacudimientos. Estando primorosamente construida, de la mayor solidez y teniendo una gran superficie que presenta al viento es la que funciona con la mayor facilidad al par que es la máquina que posee más fuerza motriz de viento. Esta máquina se adapta para uso de todos los climas sin que pueda perjudicarla ni sequía, ni exceso de humedad. Es máquina que se adapta eminentemente al uso de las estancias de ganado para todos usos que exijan una fuerza motriz barata. Fabrica esas máquinas la Springfield Machine Company.



"LEFFEL IMPROVED" IRON WIND-ENGINE.

Windmaschine.

AMERIKANISCHE Fabrikanten haben sich eine hervorragende Stellung

in dem Bau von Windmaschinen oder Windmühlen errungen und hat sich amerikanische Maschinerie dieser Art hohen Ruhm erworben. Die Verbesserungen, welche man an Windmaschinerie angebracht hat sind sehr zahlreicher Art, dabei hat man stets im Auge behalten, sie zu Vereinfachen, die bewegende Kraft zu mehren und die Widerstandsfähigkeit und Dauerhaftigkeit zu heben. All' diese guten Eigenschaften soll die obengenannte Maschine, die wir hiemit bildlich darstellen in sich in hohem Grade vereinen. In dieser Maschine ist der Eimer so gestaltet, dass derselbe die volle Gewalt des Windes auffängt ohne dass dessen Macht irgend behindert oder gebrochen würde an dem inneren Rande des Eimers, da der letztere beinahe so rasch sich fortbewegt wie der andere Rand. Sie eignet sich zum Gebrauch in allen Climates, indem weder Dürre, noch Feuchtigkeit irgend Wirkung auf sie ausüben können. Sie passt ganz besonders für Viehfarman zum Wasserpumpen, wie sie überhaupt zu allen Zwecken sich eignet bei denen es sich um eine billige bewegende Kraft handelt. Die Fabrikanten derselben sind die Springfield Machine Company.

Baling Press.

IN a new form of baling press the press-block is operated by a combination of toggle-bars with an oscillating steam cylinder, the admission of steam to which causes the piston to draw the outer ends of the toggle-bars toward it, and thus force the press-block with its follower against the material in the baling boxes. The cylinder oscillates in a vertical plane, and as the toggles gradually reach the perpendicular assumes a horizontal position. The more nearly the toggles approach the perpendicular position the higher the press-block will go and the greater will be the pressure on the material in the baling boxes, and as the cylinder approaches the horizontal position the power exerted by it will be applied more directly when most needed.

Hardware.

Shears and Scissors.

SHEARS and scissors are not novel, nor can they be classed among the inventions of later centuries. They have been used from time immemorial, and ancient mythology informs us of their existence by tradition. They have been found in ancient tombs of Egypt, and it is therefore certain that thousands of years have elapsed since they were first put to practical use. But the shears of ancient Egypt were not the same as those of to-day, although identical in principle. Improvement has been made, and for this improvement and the great care taken with their production American manufacturers are especially noted.

Among the firms of note in this country is the Elyria Shear Company, of whose goods three illustrations are herewith presented. These shears are made from the best steel under the personal supervision of the manager of the company's works, special attention being given to their temper and finish, every pair being warranted. Several other styles of shears and scissors are also made by the same concern, the leading brands being known as the "Elyria Shear Company" and the "Standard." The "Elyria" are steel laid and fully warranted; the "Standard" have the blades of a solid piece of steel welded to malleable iron handles by a new method which is patented. All scissors and shears of this make are packed in fine boxes, half a dozen in each box, two boxes being wrapped in one package. The Elyria Company has attained prominence as a manufacturer of fine goods and has recently been obliged to enlarge its works to meet the demands of trade. Its average production is one hundred dozen of shears daily.

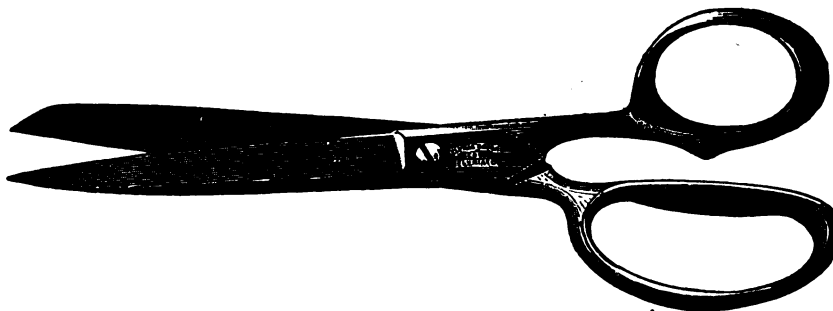
Automatic Safety Grip.

AN ingenious automatic safety grip for all kinds of hand-hoisting machinery has been devised and put on the market. Extreme simplicity is one of the principal features of the device. The grip consists of a number of rings through which the hauling rope passes and can work freely, the rings being arranged in a series and hinged on one side in a small box frame attached to the standing block. On the other side they are joined by a small bar. When the rings are in a plane at right angles to the rope, the latter can readily move in an upward direction, but when they are inclined upward they act like a clamp by reason of the arrangement of their hinging points, and the rope will thus be firmly held as in a vise against any upward movement and the stronger the upward pull the more tightly the rope will be gripped. At the same time, however, the grip offers no resistance whatever to a downward pull on a small relieving rope, which is used to bring the rings into position at right angles to the standing block, and a load may thus easily be raised and securely held at any point in its ascent.

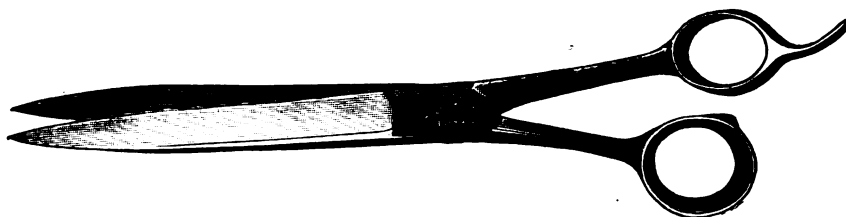
A slight pull on the small rope is sufficient to overcome the ten-

sion of a spring which holds the grip rings up and against the hauling rope and brings the rings to the horizontal position and thus releases the hold of the grip, leaving the rope free to move upward. The action of the grip is entirely automatic, offering an absolute safeguard against the slipping of the rope when sustaining a weight. The lost motion also is extremely small, constituting a feature whose importance will be readily appreciated.

Practical test is said to have satisfactorily demonstrated the efficiency of the device, and its wide range of applicability promises to bring it into extended use.



ELYRIA SHEAR COMPANY'S STRAIGHT TRIMMERS.



ELYRIA SHEAR COMPANY'S BARBER SHEARS (LIPPED).

rigidly fixed to a sleeve formed with lugs, upon which there are placed two chains, the upper links of which are engaged by hooks formed at the ends of the arms of a forked lever pivoted to the other standard. In the upper end of the tube there is an adjustable rod. The tube and its rod are raised when the lever is depressed, and are held in an elevated position by a catch-arm formed with a shoulder, which, as the tube is raised, falls in below the lower edge of the sleeve. When it is desired to lower the tube, the lever is depressed. This movement causes the sleeve to strike against an inclined face on the upper end of the catch-arm, which is moved away sufficiently far to permit a cam-faced guide pivoted to the arm to fall to a

horizontal position, when it will hold back the catch-arm during the descent of the tube.

Single Spring.

AN improved means of arranging a single spring for four-wheeled vehicles is such that when the box and spring are depressed both sides of the box must be depressed equally, whether the load is located in the centre of the box or not. The front and back axles are connected by the reach in the ordinary way, and upon the front axle is

a bolster connected with the rear axle by the side bars, the bolster and the rear axle having each a shackle, to which the ends of a flat upwardly curved



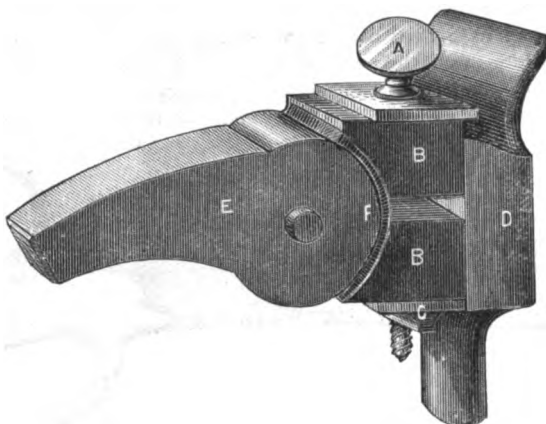
ELYRIA SHEAR COMPANY'S BANKERS' SHEARS.

spring are secured, the box or body of the vehicle being attached to the spring by suitable bolts and plates. The equalizer is a bail-shaped iron rod, the middle portion of which is pivoted at each side to the under side of the body, in rear of the attachment of the spring, and the wrists of which are journaled in boxes formed upon the irons which brace the side bars to the rear axle.

A USEFUL novelty for public halls and churches is an umbrella holder to be attached to the end of the seat. It has two parts, a rod in the form of a drop-handle and a drip-cup. The rod is attached to the top and the cup to the base of the seat. The rod lifts, giving a space of about three inches to receive the umbrella and the drip-cup can be removed and emptied.

The "Boss" Anti-Shaft-Rattler.

NOTHING is more disagreeable to the person who owns a carriage and has frequent occasion to use it than to find that the shafts rattle, giving forth a noise which suggests dilapidation. To provide against this various devices have been suggested and used to take up wear and to overcome the annoyance mentioned. One of these devices, made by the Garry Iron Roofing Company, is illustrated in the engraving presented herewith. The "Boss" anti-rattler is made in two pieces, one of which is put in from the under side and the other at the top, so that it is unnecessary to take out the shafts in attaching it, as in the case of other devices. This anti-rattler has a leather lining. It is well known that where there is constant friction good, hard leather will wear longer than any other material, and for this reason this attachment is claimed to be peculiar for its durability. The cut illustrates the mode of application, A representing a thumb-screw, B B two rubbers, C the screw bottom, D the axle clip, E a side shaft, and F the leather lining. By turning the thumb-screw the rubbers are drawn together preventing any rattle, and as these wear the screw is turned until the rubbers are worn out. This article will fit every vehicle that the common rubber is used on without any difficulty whatever, but in some carriages the yoke of the axle projects under the clip, so that it is hard to get the under rubber in. This projection should be filed off, as it is absolutely necessary that the slightest interference should be removed, so that not only the under rubber and plate may be easily placed, but that the thumb-screw may have free play down as the rubber is compressed from time to time. The rubbers should not come in too close contact, and if they hit they should be sliced off at the meeting point. All rubbers are one inch, and must be sliced from each end to fit a $\frac{3}{8}$ ths clip, so as to bring the hole in the centre. The back side of the plates is narrower than the front from the hole.



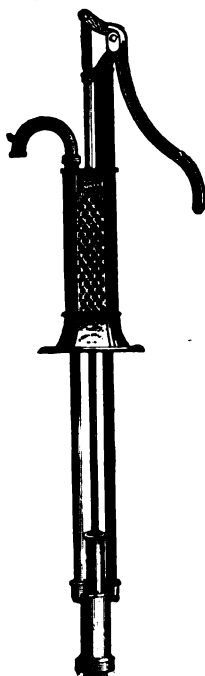
THE "BOSS" ANTI-SHAFT-RATTLER.

is an important consideration. Each pump is provided with a small waste hole, not larger than a darning-needle, in the discharge-pipe, four feet below the platform; this will always allow the water to settle down to that point in the pipe after pumping, and is a sure protection against frost. The water starts with the first or second motion of the handle, and the flow ceases the moment that pumping is stopped, leaving no drippings to form mud or ice on or around the platform. It throws a steady stream, and is provided with a coupling, to which hose can be attached, so that water can be carried to any part of a house or grounds, and can be forced sixty feet from the end of the hose nozzle. The "Buckeye" pump is made for shallow and deep wells, and also with an attachment for use with wind-engines, as manufactured by the firm named.

Farming Tool Handles.

ILLUSTRATIONS are given of several forms of farming tool handles, manufactured by the Piqua Handle and Manufacturing Company, which makes all kinds of handles of this class, including long and "D" handles for such tools as hay, manure and spading forks, hoes, rakes, shovels, &c. Owing to the scarcity in other countries of timber best adapted for such uses, by far the largest proportion of such goods is manufactured in the United States, and the firm mentioned is noted for their production and is a large exporter, its trade extending to different parts of the world and very generally through England and Continental Europe. Special attention is given to maintaining the standard of quality with these goods, and it has become understood that the name of the Piqua Handle and Manufacturing Company is the guaranty for the goods which the firm offers.

The company is also a large producer and exporter of garden rakes of cast steel or malleable iron, for which it has exceptional advantages for production at low prices. Foreign buyers who want to derive the advantage of buying tool handles of the best quality from manufacturers who believe themselves able to meet their demands upon the lowest scale of prices are invited to confer with the Piqua Company.



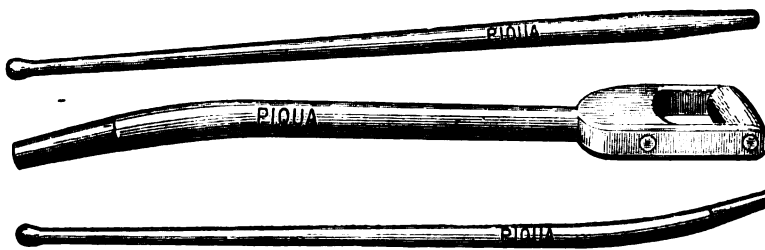
"BUCKEYE" FORCE PUMP.

"Buckeye" Force Pump.

ALTHOUGH pumps are largely used comparatively few people know anything about their parts or construction. A pump consists of a cylinder, plunger, check-valve and suction or connecting pipe, these being the most essential parts, without which the pump would be incomplete, and which, if out of order, would render the pump practically useless. The cut illustrates a complete pump, manufactured by Mast, Foos & Co., and known as the "Buckeye" force pump. The value of a pump is determined by its durability, simplicity, the ease with which it is operated in deep wells, protection from frost in winter, &c. The "Buckeye" pump possesses these valuable qualities. The working and wearing part of a pump is the cylinder. If that is defective the pump cannot work well, no matter how substantial the remainder of the pump may be or how attractive in appearance. The cylinders of the "Buckeye" are made of brass, or iron lined with porcelain, which being as smooth and hard as glass do not wear the leather packing to the plungers. Only the best leather is used for the valves, and all material used is calculated to do good service for years. The pump is fitted with a patent brass valve-seat. There is no stuffing or packing box, as in most force pumps. The valves are simple and substantial, and not liable to clog with sand and dirt. As only half of the water in the cylinder is discharged with each motion of the handle the friction of the water passing through the pipe is greatly reduced. This

Mangos de Herramientas Agrícolas.

LA Piqua Handle and Manufacturing Company hace especialidad suya la fabricacion de mangos para instrumentos al uso de los hacendados. Hay grabados en esta página que los ilustran. Se notarán entre ellos mangos largos ascomo en "D" para horquillas y bieldos para el heno y abono, azadones, rastrillos, palas, &c. La abundancia de madera propia para mangos de esa especie en los Estados Unidos ha aventajado á los fabricantes americanos en esta ramo de manufactura. La compañía á que nos referimos no hace uso para mangos de esa clase sino de las mejores maderas y los mangos están bien acabados. Asevera que es la casa fabril y exportadora más importante no solo de mangos, sino tambien de rastrillos de jardin, hallándose situada tan favorablemente que pueda brindar ventajas superiores á los compradores.



FARMING TOOL HANDLES.

Carriage Wrench.

MANY improvements in wrenches have been suggested of late, and one of the most desirable is particularly adapted for use with carriages. This wrench is so made as to be readily adjustable for either a large or small nut, and after the nuts have been removed from the axle they will be retained within the recess of the wrench, so that the whole device may be laid upon the floor or ground without bringing the nut in contact with sand or grit.

The "Zeeck Pattern" Axe.

PROBABLY no kind of wood-cutting tool requires a more exact and even temper and better quality of metal, as well as greater perfection as to model, than the axe in its various forms. A good axe must not only be of sufficient hardness, but its temper must be such as to enable it to be used in all climates without breaking, even with the most rough and careless handling. Every wood-chopper knows how easily a poor axe will break on a cold winter's morning, thus giving evidence of its uneven and imperfect temper. Besides, a good axe must be made of good material, for without this all of the tempering in the world would have no avail. It was only after long and careful experimenting that manufacturers were able to produce a really scientific axe. The secret was solved, however, and that American manufacturers are not behind in its successful application is attested by the large and steady increase in the trade in American axes, both at home and abroad.

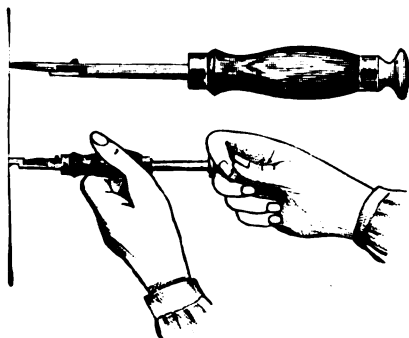
The "Zeeck Pattern" axe, of which an illustration is given, is made by Johnson Brothers, and is offered as a tool of the finest quality. In this axe only a fine grade of steel is used, and special attention is given to secure a finely-tempered as well as a highly-finished axe. The "Zeeck" axe has been tested under all conditions of weather and in different kinds of timber, and is said to have stood the test remarkably well. It is recommended as being of superior chopping quality and as adapted to the needs of all who want a first-class axe. The manufacturers state that unscrupulous parties have endeavored to counterfeit this axe, and are offering imitations labeled to deceive buyers. They therefore warn the trade that their registered trade-mark is "Zeeck Pattern Axe," and that the genuine has their names stamped in it, and is labeled as shown in the illustration.



"ZEECK PATTERN" AXE.

Hacha Modelo Patente de Zeeck.

LAMAMOS la atención hacia el grabado que representa el hacha modelo patente de Zeeck manufacturada por los Señores Johnson Hermanos. Está hecha del mejor acero, finamente atemperado, y primorosamente acabada con bronce y plata, gusanillo sencillo y doble, de todos pesos. Los fabricantes de esa hacha la garantizan. Han sido ensayadas esas hachas en todos los climas y sobre toda clase de leña y nos aseguran que han dado siempre la mayor satisfacción.



KNITTER.

Knitter.

THE neat little device herewith illustrated and known as a knitter has been devised and is used for making all kinds of fancy knitting work, for rugs, tidies, hoods, dusters, lap-ropes, foot-rests, ottomans, &c. It is claimed to be the cheapest and best thing of the kind ever made, having a great many advantages, being simple and durable, and capable of doing the work with unusual rapidity. It requires no skill to operate it, as it regulates its own stitch and is easily guided around any curve without changing the position of the hands. It is neatly packed in a box and can be sent by mail.

A NEW anchor, with separable parts, can be readily taken to pieces for storage or shipment. The shaft has hooked pivots, so that screw threading and nuts are not required: the fluke is triangular, with fins to prevent the cable from being caught on the upper angular corners.

Improved Gas-Stove.

THIS stove is formed of a single chamber, having at its top radiating hollow arms formed with a series of holes in each of their sides from which the escaping gas is burned, and having its bottom, in which are air inlet-holes, contracted to fit snugly upon the gas jet. The air-holes are placed slightly below the top of the jet, and serve to admit air, which mixes with the gas on its passage to the burner holes, thereby causing a thorough combustion, with intense heat, and without smell or the formation of lampblack. Upon the upper surface of the arms are suitable supports for holding the object to be heated. In another form the stove consists of several chambers, each formed at its upper end with a cluster of radiating hollow arms. The lower ends of these chambers fit upon gas-burners, and are constructed in the same manner as the one already described. This arrangement provides for the free escape of the products of combustion and also for the free access of air to the gas jets, so that the carbonic acid gas given off at one part of the stove will not deaden the flame at another. The side rim directs a copious supply of air to the burners and prevents side draught from deflecting the flame from the object being heated.

Improved Wrench.

AN improved pipe-wrench is made with a long bar, having its forward end turned over and serrated to form a fixed jaw. To the bar is pivoted a lever, the long arm of which, together with the back end of the main bar, forms the handle of the tool. To the outer end of the short arm of the lever is pivoted the back end of a metal box having two parallel longitudinal slots, through one of which the bar passes, while in the other fits the shank of a T-bar, whose serrated head is slotted for the passage of the main bar. The outer edge of the shank is formed with notches, any one of which, as the shank is moved endwise in the box, may be engaged by a pawl lever. When the stem of the pawl lever is thrown out, the shank and its movable jaw may be slipped along to separate the jaws, so as to admit the pipe. The pawl lever is then swung to position and the jaw-bar is locked to the box. As the handle lever is swung toward the main bar, the box and jaw-bar will be moved forward to firmly clasp the pipe. The same principle is applied to a monkey-wrench. In this case the box is immovable endwise, but the jaw bar may be set and locked at any desired position on the main bar.



CRUMB PAN AND KNIFE.

Crumb Pan and Knife.

CRUMB pans and brushes have long been known to the trade and to housekeepers, but the crumb pan and knife shown on this page is a new device. Both of the articles are made in brass, either in hammered or indented ware. They are said to be taking well and to have sold rapidly wherever shown.

A COMBINATION hand vise is provided with a plate in which it fits firmly and securely so as to be used as a bench vise. The jaws are polished, checked and tempered, and are one inch wide, opening one inch. The body of the vise and the bench-plate are japanned.

Metals and Mining.

Mineral Wealth of Northeast Georgia.

PROBABLY the most unknown section of the United States up to within a few years past was Western North Carolina and Northeast Georgia. Here these regions of wild, high mountains lay, within a few miles of the sea-coast and within thirty hours' ride of New York city, yet up to 1870 there were thousands of acres in the Rocky Mountains and the Sierra Nevadas more thoroughly explored and better known. Years ago the great botanist, Michaux, wrote of its wonderful flora; Mitchell, of the North Carolina University, talked and wrote in vain of its mineral wealth, and later Guyot established the disputed fact that here were the highest mountains east of the Mississippi. The construction of the Western North Carolina Railroad opened that section to tourist and scientist, and the same work is now being done for the Northeast Georgia country by the construction of the Marietta and North Georgia Railroad. This railroad is to commence at Marietta, Ga., and terminate at Murphy, N. C., with a branch to Ducktown, Tenn. It is already constructed to within thirty miles of Murphy and twelve miles of Ducktown. Its entire grade is made for a standard-gauge road, and the cross-ties are also so made; hence, though now a 3-foot gauge, it could be rapidly changed. The Western North Carolina road and its western division to Murphy are both standard gauge.

Such are the possibilities of transportation rapidly entering this hitherto unknown region, and the question arises, What is there there for these railroads? Of all the railroads yet built in the State of Georgia, the Marietta and North Georgia is the one which will most extensively and specially develop the mineral wealth of the State. The great State road, now called the Western and Atlantic, passes near a few good limonite beds, and for the want of a better transportation has been the carrier of a large quantity of iron ore and manganese, also of lime and cement. But it can only touch the great mineral body by branch roads.

The county of Cherokee, Ga., has for many years had a high reputation for gold; in magnetic iron ore many specimens are to be found on the surface, at one point of great richness and with every appearance of a vein, but none has been found, probably from want of proper exploration. A peculiar feature of the Southern people is that in some instances, as of iron ore or coal, they will spend but little in exploration and accept surface indication one way or the other as a finality, while around the illusion of gold they will spend thousands in digging on yellow mica or sulphuret of iron under the direction of some traveling quack. In this way the true wealth of North Georgia has been neglected. There are also in Cherokee County a number of large limonite deposits, chiefly on the north side of Etowah River.

The first great development of mineral wealth, if it may so be called, which has been the outgrowth of the construction of the railroad is the marble quarries of Pickens County. The marble is of the best quality and in practically inexhaustible quantity. As an outgrowth of these quarries are the large marble-dressing works near Marietta. What will follow this just-named development can only be conjectured, but with the abundance and purity of the iron ores there is the possibility at least of a furnace at Marietta, where the large amount of debris from the marble works would furnish ample flux, while coke could be brought from Tennessee. Should the Marietta and North Georgia continue their line across to the Georgia division of the East Tennessee, Virginia and Georgia and the Georgia Pacific, as they intend to do, it would afford the possibility of sending these magnetites and pure hematites to Birmingham, and also of bringing coke from that region.

The connection of this road to Ducktown will make it possible to bring out at low rates the large bodies of cupriferous pyrites for the manufacture of sulphuric acid, and undoubtedly cause the erection of works for smelting into copper the slag residuum from the acid manufacture. Should the road be carried down the Ocoke River to Cleveland and Chattanooga, another means of access to coal would be obtained, and another outlet for the ores of iron and manganese of Cherokee, N. C., of Pickens and other counties of Northeast Georgia. There is no doubt that the construction of this road, as its owners propose, from Anstell, at the junction of the Georgia Pacific and East Tennessee, Virginia, and Georgia to Marietta, and the extension of their present line via Ducktown to Chattanooga, will be a great

power for the development of the mineral wealth of the South. The valley of Valley River in Cherokee County, N. C., and of the Ocoke in Pickens County, Ga., have an area of mineral wealth hardly surpassed. In those valleys are found in parallel lines the best of limonite and magnetic iron ore, manganese in large quantities, gold both in placer and veins, silver and lead, marble of the finest crystallization and veins of talc. These are all concentrated in the foothills of a valley only a few miles wide at any point. Silently and steadily two railroads with ample capital are pushing into this region. What is to be its future can only be a matter of imagination. Combined with these resources is a good soil from valley to mountain top, and an excellent climate. As a matter of course the question for consideration will be whether it be cheaper to carry the ores to the coke or the reverse; yet there is no doubt that on the line of the railroads from Marietta to Red Marble Gap are some very favorable sites for the construction of blast furnaces for the manufacture of pig-iron, viz.: abundance and variety of ores, quantities of manganese, best of limestone, ample water supply and a healthy climate.

That the manufacture of a fine grade of charcoal pig or of blooms for fine steel would pay for a time there is no doubt, and as the Alabama charcoal furnaces gradually change to coke this region would furnish good sites for a few such furnaces; but the constant improvement in the grades of coke iron is almost certain to greatly lessen the demand for any but the very finest grades of charcoal iron, and the area of its manufacture must be limited. But the great mountains which surround Valley River and other streams will supply for many years a vast amount of charcoal. Whatever may be the certainties of the near future, there can be no doubt that the construction of the two railroads named above gives a possibility of industries in this region employing numbers of operatives and occupying large capital, with at least a fair chance for good profit in return for the investment.—*Iron Age.*

Capacity of Steel Works in the United States.

IN September, 1884, the country contained 20 standard Bessemer steel works, with 45 converters and one new plant in course of erection. In August, 1886, when the present edition of the directory was printed, the number of standard Bessemer steel works was 27, with 58 converters, and seven new plants in course of erection. These figures indicate a great stride in this important industry in the last two years. This increase has been chiefly in the erection of small plants to make nail plate for steel nails and billets for machinery steel, wire rods, wire and miscellaneous purposes. Only two works which may roll steel rails as part of their product have been undertaken since September, 1884, and these are not yet in operation. The annual ingot capacity of the completed and unfinished Bessemer works increased from 2,490,000 net tons in 1884 to 4,102,000 tons in 1886. This increase will attract attention. It is the result partly of the erection of new plants, but chiefly of the improved practice and increased machinery of the old works. All of the Bessemer plants erected in the last two years or now in course of erection are of the standard Bessemer pattern. No basic plant has ever been erected in this country, and we know of none that is now proposed.

The erection of Clapp-Griffiths steel plants has made remarkable progress since 1884. When the directory for that year was published there was but one in the country; now there are six completed works and two in course of erection, the whole number to embrace 13 converters. The annual ingot capacity of these eight works is to be 200,000 net tons; in 1884 the single plant then in existence was credited with an annual capacity of only 5,000 tons. The Clapp-Griffiths steel made in this country is largely used for nail plate and wire rods, but it is also used for many other purposes for which iron has been used.

In September, 1884, there were 35 completed open-hearth steel works in the United States, and three new works in course of erection. In August, 1886, there were 42 completed works and seven in course of erection. The open-hearth works in 1884, completed and building, embraced 63 furnaces, and in 1886 they embraced 91 furnaces. In 1884 the ingot capacity per annum of the works then completed and building was estimated by the manufacturers at 550,000 net tons, and in 1886 it was similarly estimated at 660,000 tons. Our open-hearth steel industry is now manifesting much more activity than formerly, and we look for it to make steady progress from year to year.

Our Bessemer steel industry and open-hearth steel industry, contrary

to the general opinion, are now located in many States, each in eleven States, or together in fourteen different States. The Clapp-Griffiths process, which is first cousin to the Bessemer process, is also located in many sections of the country, being found to-day in three States.

Our crucible cast steel industry is scarcely holding its own in the struggle with steel made by cheaper and more modern methods. At the date of publication of the directory in 1884 the country contained 41 works, with 3,594 steel-melting pots and an annual capacity of 115,000 net tons of ingots. In August, 1886, we had 40 works, with 3,391 steel-melting pots, and an annual capacity of 110,000 tons of ingots. Open-hearth steel is the leading rival of crucible steel. Many of our crucible-steel manufacturers are adding open-hearth furnaces to their crucible plant. For locomotive boilers and fire-boxes, locomotive and car springs and agricultural machinery the use of open-hearth steel is rapidly growing, but for all the more delicate purposes for which crucible steel has heretofore been used, especially fine springs and fine tools either with or without cutting edges, it will always be in demand.—*Directory American Iron and Steel Association.*

North Carolina Talc and Marble.

THE quarries of the North Carolina Talc and Marble Company are situated directly on the line of the Murphy division of the Western North Carolina Railroad, in Swain County, and ninety-eight miles from Asheville, where the two branches of the Western North Carolina Railroad have their junction. There are only 175 acres, which is cut in two by the railroad.

Three immense beds of talc have been opened, but only one of these has been quarried to any extent. The other two are held in reserve. A large quantity has been taken from the quarry next to the railroad. They have a side track which is within a few feet of the quarry, and it is an easy job to take out and weigh a car-load of talc. The material is pure white and free from all impurities.

There is enough marble on the property to build a city. The house could be of black, white, green, blue, flesh color, pink or variegated. The marble is in great abundance. Blocks can be gotten out fifty feet in length and 4 x 4 feet without crack or seam. There is a cliff of solid marble on the property thirty feet high. This marble is susceptible of high polish, and is very beautiful for ornamental purposes, indoor and furniture decorations, and for monuments. From an adjoining quarry marble was taken out last month for use in the new governor's mansion, now in course of construction in Raleigh, N. C.—*Manufacturers' Record.*

New Manganese Mines.

A NEW YORK firm has completed the purchase of a 5,000-acre tract of manganese ore land in Virginia. This purchase will enable the firm to supply the home market with sufficient manganese ore to shut out the greater part of the spiegel and fine manganese imported from abroad. The development of the tract will begin at once, and inside of a few months a new town will be built and about a thousand men will be at work, getting an output of 500 to 800 tons of ore per day. The new purchase lies twenty miles from Waynesburg, and is within three miles of the Shenandoah Valley Railroad. The operators will at once begin the construction of a branch road, and it will be pushed to completion as rapidly as possible. Men are at work now developing the tract and ore is reached at a depth of about eighty feet. It lies in large bodies, or pockets, and it does not run in veins like coal. The new concern will be able to place in the market at least 10,000 tons per month of manganese ore from its new purchase.

Sporting, &c.

Canoes.

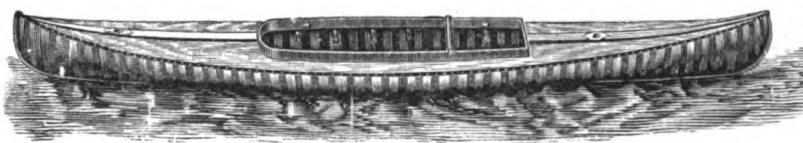
THE great increase in the use of canoes, whether for racing, hunting, fishing or other pleasure purposes, has led to the manufacture of these boats on a large scale. It is well known that American forests supply the best and lightest woods, and it is not therefore surprising that the business of making canoes should have become an American specialty, particularly when it is considered that craft of this character are, so to speak, aboriginal, having been known to the Indians native to America for centuries. But the ancient models have been improved upon and modern machinery and mechanical skill have united to turn out canoes remarkable for beauty, speed, capacity and durability. The Ontario Canoe Company makes a specialty of the production of canoes and



PATENT RIB OPEN CANOE.

several of its styles are herewith illustrated. This company received a silver medal for its canoes at Antwerp and has secured prizes at every exhibition where its canoes have been shown. It had twenty-three different styles on view at the Colonial Exhibition at London.

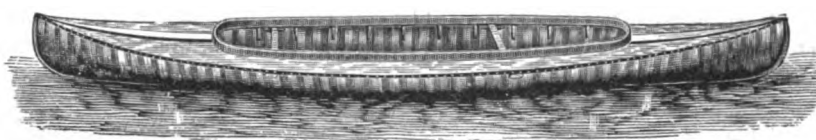
The "patent rib" open canoe, of which an illustration is given, is built of cedar stripes, which run from gunwale to gunwale, and are matched with tongue and groove joints. The stripes are steamed and bent on molds and dried in a kiln, and are then taken off the molds and placed in iron clamps, by means of which every joint is pressed into place. They are then put back into the kiln and retained there until all danger of shrinkage is overcome, after which they are made perfectly smooth, inside and out. The gunwales are of maple and the



THE "ONTARIO" CANOE.

stem and stern pieces of oak. This canoe is usually made 16 feet long, 5-16ths of an inch thick; but it can be had heavier or lighter—even to 1/8th of an inch in thickness. The company has built a canoe of this class weighing only 12½ pounds, carrying a load of 450 pounds.

The "Juniper" canoe is intended to combine, as far as possible, the distinctive advantages of the open canoe and the decked canoe. It is decked to 3 feet at each end, and 3 inches wide along each side, forming a long and wide cockpit. A combing runs around it, which is about 1½ inches above the decking. The long cockpit makes the boat nearly an open canoe, in its roomy capacity for stowage and carrying, while the decking and combing make it a very good sailing canoe.



THE "JUNIPER" CANOE.

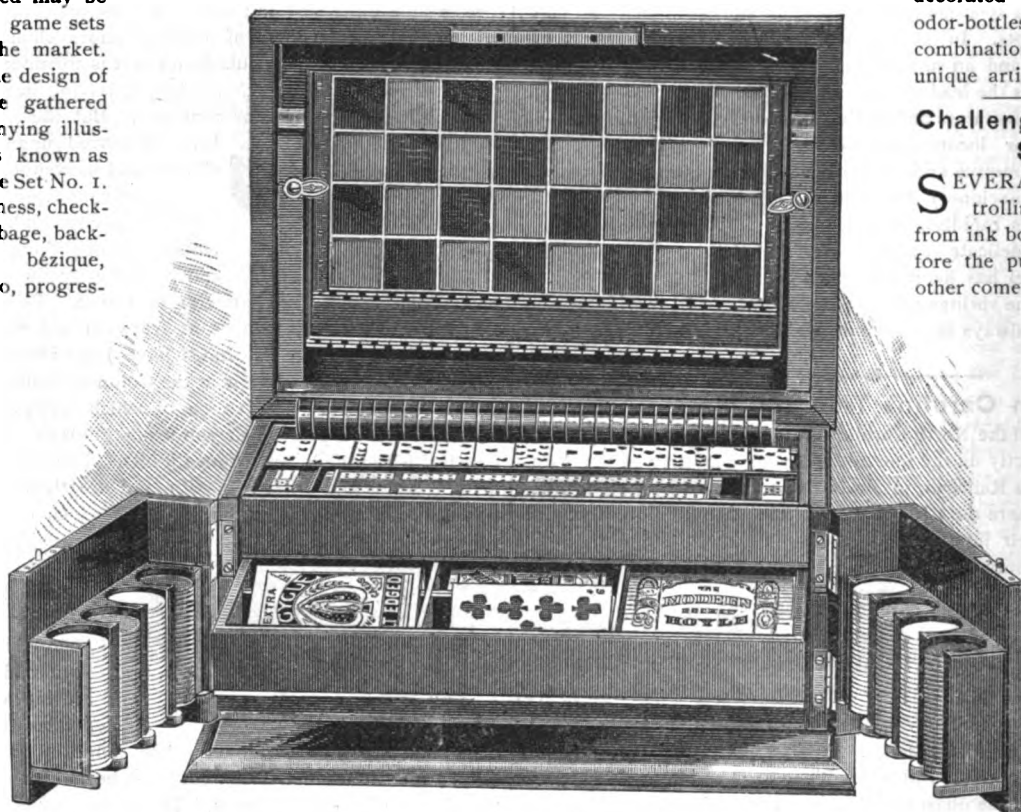
The "Ontario" canoe is a traveling or cruising craft, easy to paddle and sailing well. It is built on the same model as the open canoe, in several sizes. It is fitted with two air-tanks, one at each end, between the mast tube and end, or with air-tight compartments. Other tanks can be made to fit between the end of the cockpit and mast tubes, which make a complete lifeboat of the canoe, and which can be taken out when the room is required. The cockpit is from 4½ to 6½ feet long, half round or pointed in front and half round or square at the stern. The decks are put on with screw nails, so that they can be taken off if wished. The bulkhead and stern-hatch lock in so as to be used as a locker, and the other hatches also lock on. The mast tubes are of heavy brass tapered and screwed to the keel and decking so as to brace the boat and be taken out if desired. The boat is decked with butternut, cherry or other native wood, but more expensive decking is furnished when wanted. It can also be fitted with a standing keel or centre-board, if desired.

Several other styles and sizes of canoes, in all nearly two hundred, including a folding boat, are made by this company, which also supplies paddles, sails, camping outfits, &c. The features of these canoes are lightness, tightness, strength, durability and beauty of model.

Fancy Goods, Stationery & Paper

Game Set.

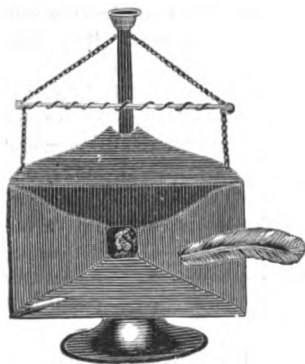
COMBINATIONS have always been found convenient and desirable in making up lines of goods, and probably one of the most attractive yet devised may be found in the new game sets lately put upon the market. A good idea of the design of these sets can be gathered from the accompanying illustration of what is known as the Complete Game Set No. 1. This set contains chess, checkers, dominoes, cribbage, backgammon, poker, b  zique, whist, go-bang, lotto, progressive euchre, jack-straws, four packs of cards, with a copy of Hoyle and other essentials. It is handsomely put up in a black walnut or plush case and the whole combination forms an aggregation which is very taking. Several other styles of game sets are manufactured, some of the cases being leather. They will serve as handsome presents. The compact manner in which the games are put up makes these sets useful for travelers.



GAME SET.

Card-Receiver.

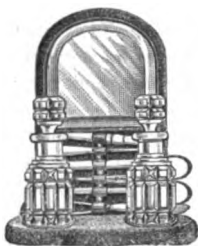
A VERY pretty novelty in the shape of a card-receiver is the one illustrated on this page. It represents an envelope suspended by chains to a banneret stand, the flap of the envelope being open.



CARD-RECEIVER.

Piercing the envelope is a quill pen, the feather extending over the right edge, while the nibs appear through the lower flap. The design is unique and the article is a very taking bit of brasswork, which will probably be in demand, not only on account of its attractiveness, but because of its novel originality. This is not the only one of the novelties to be found with the house referred to and which claim attention.

AN inkstand on a fancy wooden stand has behind it three imitation wine-bottles, which serve as pencil and pen holders.



ODOR STAND.

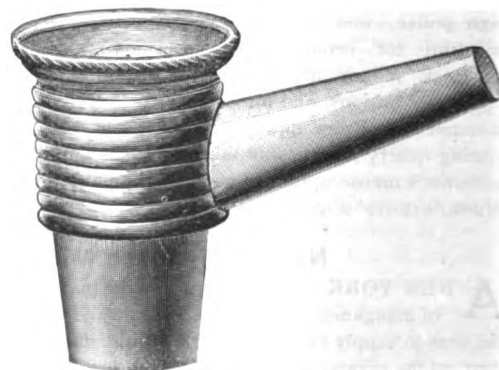
Odor Stand.

THE new odor stand illustrated on this page is a neat combination for those who want an odor and work box in one. The back is of plush, the upper part being occupied by a mirror, beneath which is a set of work-box equipments, consisting of six pieces, held in position by loops of fancy leather. The front of the stand is decorated by two fine glass odor-bottles. This novel combination is a neat and unique article.

Challenge Ink-Bottle Spout.

SEVERAL devices for controlling the flow of ink from ink bottles have been before the public, and now another comes as the latest invention in this line to claim attention. The "Challenge" ink-bottle spout, of which an illustration is given, is a simple yet serviceable attachment for bottles. This spout has a detachable separate air-chamber, which upon being screwed back from the valve-seat thoroughly vents the bottle, giving a full, steady stream.

The syphon nature of the flow causes a suction during the process of pouring and prevents the passage of any liquid into the air-chamber or out around the screw while in use. The bottle is thus kept clean and as soon as the stopper is screwed down on the valve-seat the air-chamber is entirely on the outside and all evaporation is prevented. There is no spring to get out of order, and there is no tube leading down into the liquid, which always leaves the bottle open to the air.



"CHALLENGE" INK-BOTTLE SPOUT.

The "Perfection" gasket is said to make a perfect seal and is not destroyed by the action of ink. Only few turns of the screw are required for pouring or closing.

A NEW letter-book has waterproof corners to the pages to prevent them from sticking, while the edges of the pages near the binding are waterproofed to prevent rotting. A pad made of blotting-paper is fastened in a waterproof case, open on one side, and by means of this thirty or forty pages can be moistened at one time, they remaining wet until needed. The new book can be used without a press.

American Industries.

The Manufacture of Agricultural Machinery.

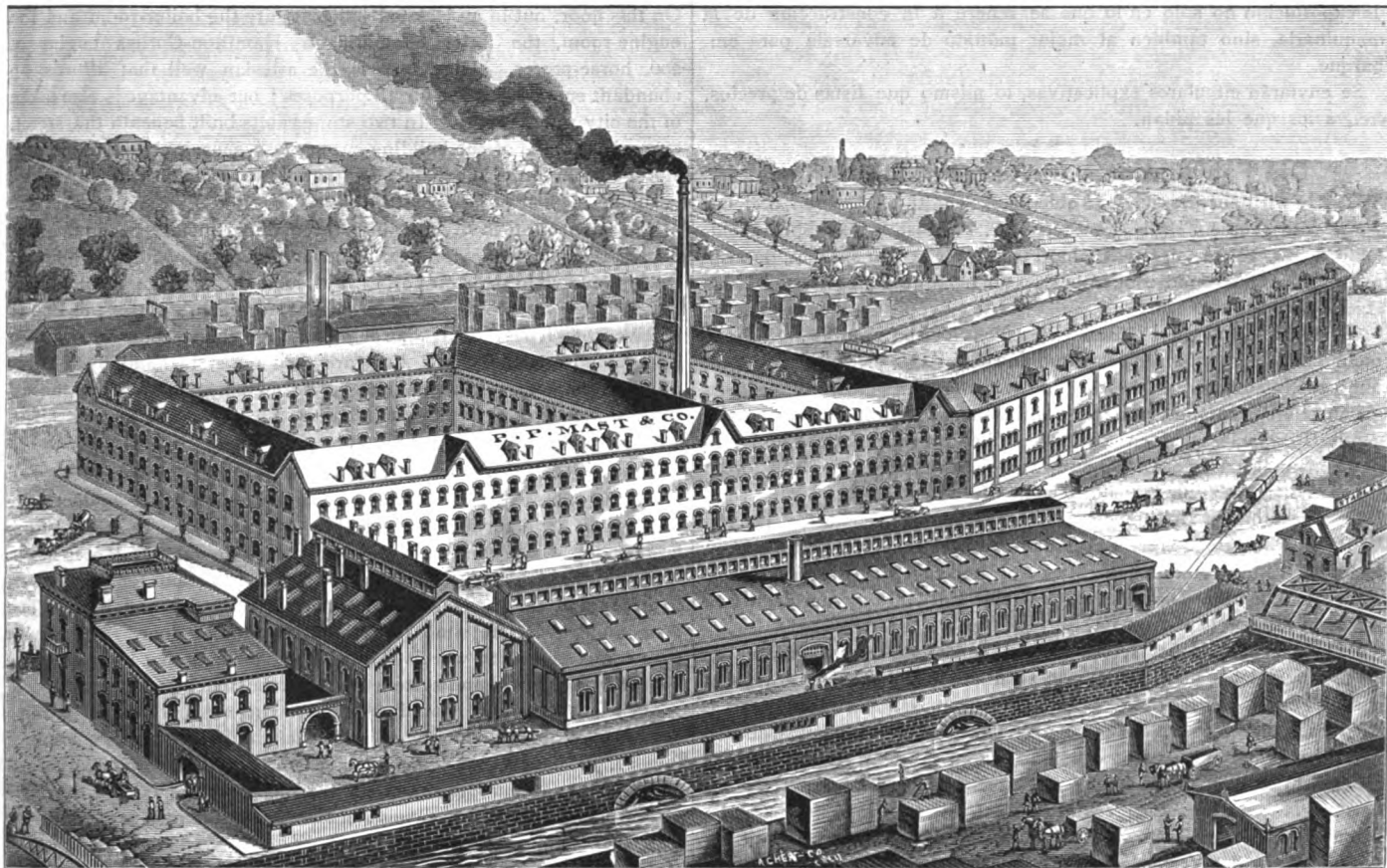
P. P. MAST & CO., SPRINGFIELD, OHIO.

ON this page will be found an illustration of the immense factories of P. P. Mast & Co., Springfield, Ohio, U. S. A., who claim to be the largest manufacturers of grain sowing and cultivating machinery in the world. For over thirty years this firm has been en-

Besides the "Buckeye" drills the firm manufactures a fine line of broadcast seeders, with cultivator attachment, force-feed grass seed attachment, &c.; also, the "Buckeye" eleven-foot broadcast sower, fitted with improved scatterers, &c.

The firm also makes a full line of both riding and walking cultivators, horse-hoes, double shovel plows, cider mills, &c., and throughout the entire line of goods its aim is not to make the cheapest, but the best goods in the market, and only the very best material and workmanship is allowed.

Each year P. P. Mast & Co. are engaged in improving the various



Factories of P. P. Mast & Co., covering seven acres.

gaged exclusively in the manufacture of this class of machinery, and the reputation of the "Buckeye" goods made by them is well-known and standard in this country as well as in many foreign countries.

Starting from a very small beginning, the works have been gradually and steadily enlarged, until now the factory buildings, lumber yards, &c., occupy a space of over twenty acres, while the floor-space alone is some seven acres. The firm also employs a very large force of skilled mechanics, running the works the year round and for many months in the year it is compelled to run night and day to keep up with the demand for the goods.

The "Buckeye" force-feed drill is one of the principal articles made by P. P. Mast & Co., and from the first day of its manufacture took a leading position among grain drills and has ever since been recognized as a standard, its sales each year being very great. This drill is made with an accurate force-feed for sowing grain, also as a combined grain and fertilizer drill, which sows the grain and fertilizes all at the same time. It is perfected in every detail and is fitted to work in all classes of soil.

Each drill is provided with an accurate force-feed grass-seed sower, fitted front or rear, as desired. If it is desired to change the quantity to be sown, no changing of the gearing is required, as under the old system and as is still employed in some drills, but by simply moving the indicator-hand on the rear of the hopper any desired quantity will be sown and just the amount that is desired and no more, the indicator moving the cut-offs in all of the feed-cups at the same time. To raise the hoes, a convenient hand-lever is provided, which raises all of the hoes at the same time with little effort on the part of the operator.

machines as the needs of the farmers seem to require, their endeavor being to keep not only up with the times but a little in advance, and the success of these goods in the markets of the world seems to show conclusively that the goods are fully appreciated.

The experience of the firm in building and shipping machinery abroad and adapting it to the needs of the foreign users, has eminently fitted it for the export trade, and the "Buckeye" has taken leading rank abroad as well as in America. All goods made by this firm are fully warranted in every way to do good work and to be well made of good material. A full line of explanatory circulars will be sent to any part of the world on application to P. P. Mast & Co., Springfield, Ohio, U. S. A., and full information as to prices, discounts, &c., will be cheerfully furnished.

La Fabricacion de Maquinaria Agrícola.

SE hallará en esta página un grabado que ilustra las grandes fábricas de la casa de P. P. Mast y Cia., de Springfield, Ohio, E. U. de A., casa fabril que segun se asevera es una de las más extensas en el ramo de maquinaria de sembrar y cultivar el suelo que existe en el universo.

La casa á que acabamos de referir se ha dedicado exclusivamente á ese ramo de manufactura de más de unos treinta años á esta parte, adoptando cada perfeccionamiento sugerido por la experiencia y el espíritu de invencion. Las fábricas junto con los corrales cubren un espacio de veinte acres para arriba y el conjunto de pisos que tiene á su disposicion el establecimiento mide unos siete acres.

El sementero modelo "Buckeye" con alimentacion por medio de

furza motriz, para granos y abonos es uno de los principales enseres agrícolas que salen del taller de los Señores P. P. Mast y Cia. Es máquina absolutamente perfecta bajo todos conceptos, adaptándose á toda class de suelo. Está provista tambien de una sembradora para sembrar semilla de yerba por medio de alimentacion forzada automática que echa precisamente la cantidad que se necesita. La casa fabrica además sembradoras al vuelo y asimismo gran variedad de cultivadoras, traillas, arados de dos surcos, prensas de hacer sidra, &c., siendo el objeto que persigue la casa hacer las mejores máquinas del mejor material procurable.

La casa está perfectamente al tanto de las necesidades del comercio de exportacion no solo en lo que se refiere á la construccion de la maquinaria, sino tambien al mejor método de envarsala para embarque.

Se enviarán circulares explicativas, lo mismo que listas de precios, &c., á los que las pidan.

Die Fabrikation von Ackermaschinerie.

MAN wird auf dieser Seite einen Holzschnitt beobachten, welcher die grosse Fabrik der Herren P. P. Mast & Co., Springfield, Ohio, V. St. von A., darstellt, eine Firma welche beansprucht, dass sie mehr Korn Säe- und Boden-bearbeitungsmaschinerie herstellt, als irgend eine andere.

Genannte Firma hat sich ausschliesslich diesem Fabrikszweige seit mehr denn dreissig Jahren gewidmet und sich dabei jede Vervollkommnung zu Nutze gemacht, welche die Erfahrung und der Erfindungsgeist als anwendbar empfahlen. Die Fabriksanlage sammt der sie umringende Höfe bedeckt einen Raum von über zwanzig Acker Land und der Flurraum hat eine Ausdehnung von sieben Ackern.

Die "Buckeye" Säemaschine sammt forcirter Säevorkehrung und Düngerverbreitung ist eine der Hauptmaschinen, welche die Herren P. P. Mast & Co. zu einer Specialität gemacht haben. Es ist eine in jeder Beziehung vollkommene Maschine und fügt sich dieselbe irgend einer art Boden an. Dieselbe hat auch eine Vorkehrung zum Säen von Grassaat mit forcirter Aussaat.

Das Säen wird dabei selbstspeisend verrichtet, wobei genau das Quantum, welches man dem Boden zu überliefern beabsichtigt, gesät wird. Ferner fabricirt die Compagnie Säemaschinen zum breiten Austreuen und ein vollständiges Assortiment von Pflügemaschinen Pferdehacken, Pflügen mit doppelten Scharen, Apfel Most Mühlen, &c. Sie macht es sich zum Grundsatz, stets die beste Maschinerie aus bestem Material anzufertigen. Auch ist sie mit den Bedürfnissen fremder Länder in diesem Zweige vollkommen vertraut, so wie mit der Art und Weise der Verpackung. Rundschreiben, die Alles auseinander setzen, Preislisten, &c., wird sie denen zukommen lassen, die sich dieserhalb an sie wenden.

The Manufacture of Carriages.

HIRAM W. DAVIS & CO., CINCINNATI, OHIO.

ONE of the representative manufacturing firms of the United States is that of Hiram W. Davis & Co., Cincinnati, Ohio, remarkable alike for energy and the extent and character of its products. One day in January the extensive works of this firm caught fire and were partially consumed, but in seventeen days thereafter the enterprise of the head of the firm and the expeditious labors of mechanics brought order out of destruction, and the factory was again in full operation.

The new works of Hiram W. Davis & Co. include two principal buildings, occupying an entire block, the larger factory being of brick and having a frontage of 100 feet, with a depth of 187½ feet. A wooden structure adjoining is 47 by 187½ feet. There is another building devoted to finishing and storage purposes. In these buildings 350 hands are employed.

The most striking features of the factory are its cleanliness and adaptability to the ends in view, perfect and abundant light, and the manner in which the floors and ceilings are made dust and water proof, by having the tongues and grooves coated with white-lead. Every floor is made double by having two 1¼-in. floorings placed transversely one to the other.

Opposite the office, and on the same floor, is the principal wood-

shop, where the panels, framework and gearings are prepared. The seasoned stock, after being fashioned into various shapes, is trundled into the dry-house by means of crates fitted with casters, and there left to undergo additional seasoning, lasting ten days, which insures perfect condition. The kiln is iron-lined and fitted with steam coils, that create and maintain an even temperature constantly. From here the material passes to other departments of the wood-shop, where the parts are assembled into bodies and gears ready for ironing.

The smith-shop in the basement is a scene of intense activity, with its fifty fires aglow and the air filled with the noise of drop-hammers and other machinery, operated by the large force of smiths and helpers. On this floor, but in an isolated building, are the boiler-room and the engine-room, the latter containing a Hamilton-Corliss engine of 200 horse-power. Here also is the artesian well that affords an abundant supply of water for all purposes; but advantage is also taken of the city water supply. In two stone vaults built beneath the street, beyond the walls of the building proper and shut in by iron doors, is storage room for all the paints and varnishes, where the temperature is maintained at 78° the year through.

The paint-shop is divided into three departments, occupying two floors, including one for gears and another for bodies, while the wheels revolve in their own orbit; but, as in the other departments, all is under the watchful eyes of competent foremen. Here the bodies receive their coats of lead, rough-stuffing, color, color-and-varnish and rubbing varnish; and they are then taken in hand by a corps of rubbers. The water employed is warmed by steam when necessary, and everything is done to facilitate the work and conduct it in a cleanly and comfortable manner.

Passing next into a room apart from the others, men are found flowing on finishing coats of varnish; and as soon as the bodies have been given a mirror-like surface, they are passed on to still another large room, where they are placed separately in racks. Here, where no dust or light can penetrate, they are allowed to stand for thirty days, in order that the varnish may become perfectly dry and hard. The gears and wheels are similarly treated on another floor. The device for racking gears and wheels is one of the features that impresses the visitor with the care and system of the establishment.

Such jobs as require trimming before having the final coat of varnish are sent first to the trimming-shop, which is in itself a factory within a factory. It has its own stock-room, where everything is measured and cut on demand, and the materials are then parceled out to the busy girls working the power sewing-machines, or to the men at work on the tops, &c., as may be required.

In the "hanging-off" department the "order slip" for the carriage is received from the superintendent's office, and the foreman, having noted what is ordered, proceeds to assemble the parts from the body and gear rooms and the wheel and trimming departments, and thus has a vehicle ready for shipment in a few minutes. After it leaves his hands it goes to the shipper's department, where a duplicate of the order has been received in the meantime, and the shipper proceeds to get it ready for transportation, but not until the buggy has been inventoried and compared with the order, to avoid all chance of error.

Adjoining this building is the stock-room, which is a complete storehouse of carriage materials of all kinds, in charge of the buyer, who deals with the factory proper on strict business principles, taking account of and charging to its proper department every bar of iron, spring, bolt of cloth, &c., that leaves the place.

Mr. Davis is a man of energy, a shrewd financier and with a faculty for thinking rapidly and acting promptly. He acts on the assumption that work cannot be made too well, and that numerous sales and small profits, on useful and serviceable grades of work, accompanied by the good-will and satisfaction of the customer, will inevitably result in building up a business both reputable and profitable. He began the manufacture of buggies in 1877, under the firm-name of Davis, Gould & Co., and the house was so styled until September, 1884, although Mr. Gould had sold his interest to Mr. Davis two years after the copartnership was formed. Since then the title of Hiram W. Davis & Co. has been maintained, although the company is and always has been nominal. To the energy and talent of Mr. Davis must be accorded the success of this great manufacturing establishment, which is capable of turning out 20,000 completed vehicles per year.

The American Mail & Export Journal.

Publication Office: 126 and 128 Duane St., New York, U. S. A.

Cable Address, Catchow, New York.

NEW YORK, SEPTEMBER, 1886.

A N extended and interesting series of reports on the resources of Mexico is to be found in the latest publication of consular reports by the State Department. These reports give particulars as to the agricultural, mining and industrial interests of the republic and help to show in what localities labor-saving appliances may be made available. The information presented will be found useful in a variety of ways.

COUNTERFEITING seems to be the prevailing German idea of legitimate competition. Inferior sewing-machines, imitations of the American, are made in Germany and are sold with American marks and at lower prices. One of the latest attempts at imitation of this character is of fruit-drying machines, for which the manufacturers of the United States have acquired renown. This is something which our makers of this kind of machinery should take pains to counteract.

BULGARIA is still looking for a ruler. Prince Alexander's abdication was a matter of forced complaisance and Russia holds the strings. It is probably only a matter of time when the Czar shall announce the annexation, if not the assimilation of Bulgaria with his empire. Why does he not do it now and continue his march to the Bosphorus; or is he now content to make haste slowly? Perhaps the march on Turkey will be simultaneous with an advance toward India, when communications and bases of supplies are complete.

ONE of the English journals advocates a national scheme of commercial education. The suggestion is valuable and invites consideration in our own country as much as in any other. The best approach to such a system is to be found in Germany, where young commercial men devote themselves to a course of study which shall fit them for business in such countries as they may determine to prosecute it. Literary and professional pursuits require a knowledge of the classics, but for trade and commerce the study of living languages and some familiarity with the habits, wants and customs of other countries are essential.

IT is quite surprising, in going over the reports of consuls representing other countries than our own, to find that the same complaints are brought against the manufacturers of each country. We have before us a recent report of the United States Consul-General at Kanagawa, from which we learn that German and British successes in Japan are, to a great extent, attributable to the fact that they have been acquired by studying and meeting the wants of the Japanese markets. On the other hand reports from two British consuls in Germany say that British producers do not ascertain the nature of the German demand or will not change with the times, while American manufacturers are credited with greater energy and intelligence. Probably these complaints are well founded all around, there naturally being exceptions.

DURING last year there was a noteworthy increase in our exports to China, noteworthy because of the preponderance of British interests in that country. But there is reason to doubt whether we shall continue to do as well if our government neglects its plain duty in making reparation for the abuse to which the Chinese in America have been subjected by law-

less and vicious men. The action of the customs officers at San Francisco in the reception of the Chinese Minister should have insured the instant dismissal of those officers; but, as yet, no steps have been taken to repair the wrong committed or to show that the American people do not countenance the indignities cast upon the citizens and representatives of a friendly nation. There is certainly no feeling among the majority of Americans that does not reprobate the failure to make due amends for the ill-treatment of the Chinese.

NOTING a great increase in the exports from Saxony to the United States, Consul Tanner remarks that the cry of "hard times" in his consular district has been changed to that of "low prices," of which the manufacturers make a great point. But not content with accepting this statement of low prices without learning why, Mr. Tanner has applied himself to investigation, and adduces the statements of American buyers, who assert that the prices are not low for the quality of the goods. This is undoubtedly correct. German manufacturers have in times past received better prices for their products than they were intrinsically worth. It may be replied that goods are worth what they will bring, but this is a fallacy. The cheapening processes have been going on for years in Germany as the result of depreciating quality. We know that the "cheap-and-nasty" principle still controls German manufactures very largely, and we are sorry for it.

THE Canadian fisheries trouble has not been closed, and Canadian police boats and Yankee schooners keep playing at tag with each other, although nothing serious or affording ground for dispute has been reported of late. While the scheme of imperial federation is being talked up in Great Britain, a different feeling is developing in a part, at least, of her North American colonies. One of the Nova Scotian papers remarks: "There is very little commercial relationship between the several provinces of Canada, but there is a natural and unconquerable relationship between each province of this Dominion and the States to the south of it. Artificial barriers are unwise and mischievous, and this is the great lesson we have all got to take to heart. Nova Scotia's commercial interests are eternally bound up with the New England States. It goes much deeper than any mere fisheries question; it relates to all articles of commerce and barter." Could anything stronger be said of the commercial relationship of the Canadian provinces with the mother country?

ENGLISH journals, particularly those representing special interests, are continually thrusting out against the American tariff, and either by bold assertion or innuendo attempt to convince people that it is anything but a blessing to those for whose protection it is designed. The one great question in connection with a high tariff is: Does it protect and does protection advance in anywise the material prosperity of the country which practises it? We claim that it does. That this claim is true, is borne out by the steel-rail industry, which presents facts susceptible of proof at any moment. Mr. Blaine, in his recent canvass in Maine, gave the whole story of the steel-rail situation in the United States, and as this supplies in very succinct form a history of evolution and progress under the operation of our tariff, we give it place here, so that those who doubt may find conviction, and those who deny may have the chance to controvert its logic. Mr. Blaine said: "In 1869 there were about 37,000 to 38,000 miles of railroad in the whole of the United States. Not long before that time there had come across the waters the intelligence that England was beginning to use steel rails, and that they were very much more durable and better in every way than iron rails. Some of our people, anxious to get them, paid at the factory

in England £22 per ton in gold coin, \$110 per ton when they added the duties and translated it into greenbacks. The first steel rails were laid in this country at an average cost of about \$160 to \$170 per ton. This went on until 1870. The manufacturers of the country controlling the iron interests—there were practically no steel interests—said: 'If you will give us a protective duty we can make steel rails in this country.' Against the united protest of the free-trade element, and with the apprehension and timidity of many of the protective element of the country, Congress imposed a duty of \$28 in gold per ton on steel rails. The free traders complained bitterly that this would make the price so enormous that steel rails could not be used in this country. Nevertheless we imposed the duty. Up to that time—July, 1870—there never had been made 50,000 tons of steel rails in this country. There never had been made of ingot or other forms of steel over 110,000 tons. For the Bessemer steel we depended entirely upon Europe. That was only 1870. What was the result? In fifteen years from that date the manufacturers of the United States had turned out 10,000,000 tons of steel rails, enough for 100,000 miles of railway. That so rapidly reduced the price that in this very last year steel rails sold down to within fifty cents of the duty alone of 1870, so that rails were furnished at the shop at \$28.50 a ton, where they had originally cost \$160 to \$170 a ton; and while we were doing this we increased the steel product of other kinds—every form of steel that was needed—until within the same period we produced in this country 15,000,000 tons of ingot and other steel, as shown by the official statistics. Ten million tons of steel rails, 15,000,000 tons of ingot and other steel! If the cost of that ever be averaged it will be found to be about \$50 a ton. We started at a very high price and kept decreasing, so that the average was about \$50. Therefore, that product sold in this country for \$500,000,000 and the 15,000,000 tons of ingot and other steel, at the same price, sold for \$750,000,000, so that the steel product from July, 1870, to July, 1880, amounted at the seller's price in this country to \$1,250,000,000."

CONSUL-GENERAL CARDWELL, of Cairo, seems to have an earnest desire for the increase of our trade with Eastern countries. He says:

That riches might be reaped from American commerce with the Orient no one would deny. Supply and demand could be made just as imperative between the East and the United States as between it and any European country. I know that our people would buy liberally of Eastern products, and I am not ready to admit that the superior outcrop of American manufacture could not be made to compete for sale with, and in some cases even exclude, the manufactured products of European countries. It is folly to say that cheap European products exclude the more expensive American. Labor is cheaper in Europe than in the United States, but methods employed in American manufactures give advantage which cheap labor cannot overcome, and these methods impart a finish not equaled on this side the Atlantic.

The decline of American trade with foreign countries is chargeable to more than one cause. Its decline began with that of American shipping, and has kept pace with diminishing American bottomry and a misdirected excessive system of taxation acting as an embargo on American trade with foreigners. As a natural sequence of the damage arising from these causes, the manufacturers of the United States have failed to make the merits of their goods known in foreign countries. * * *

But how are the American products to be gotten to Egypt and Turkey and elsewhere in the East? There would be profit in placing them there, for I have seen the inferior manufactures of other countries selling here at figures that would give handsome profits on our most perfectly made goods. For instance, I have seen the commonest little leather roller cotton-gin, of plainest workmanship, selling here for \$100 and more, when I know such a machine could be turned out of an American factory for one-third this sum. In one cotton-ginning establishment I was shown a thirty-nine saw, English-made gin, and it not a good machine, which cost at the factory £70 sterling. American gin manufacturers will readily see the enormous profit on manufacture. Again, I have seen an English hydraulic press in operation here, not doing the best work, which costs at the factory in England a sum equal to about \$600. I know a press made at Richmond, Va., a better machine, the manufacturer's price of which is not two-thirds of this sum.

The products of our manufactures could be sold here. They could be made to compete with English products and the richest profits be left. But to sell goods they must be introduced. Manufacturers' agents should come to the East, show goods, and demonstrate their advantages. They should put machines into operation and soon they would be popularized. Still the barrier first mentioned to American trade in the East presents itself. There is no direct communication for permanent trade. A very few sailing ships make the Eastern voyage, but the steamship is un-

known as an agency for this commerce. I was talking to a merchant of Port Said a few days ago, and it was his opinion that the time had come for the establishment of a monthly line of steamers between New York and the Eastern Mediterranean sea-ports. He thinks a line touching at some French port and at some port in Italy might not pay at once, but he is satisfied that in a few months it would pay well. There is an established trade which such a line could command, and this could be largely added to in a short time by the push and energy of a few manufacturers and dealers. Merchants and manufacturers of other countries are growing rich off the profits of trade with the East, and there is no reason why those of the United States should not profit thereby. * * *

The consul-general, it seems, could not refrain from injecting a bit of free trade into his remarks. This makes him a little illogical and tends to discredit his judgment. If American goods can compete with, or to any extent exclude, those of Europe in Eastern markets, there is no existing system of taxation which can act as an embargo, and he would find that it is just that system which enables us to compete. The consul is in error if he tries to mix his patriotism with the unhallowed leaven of foreign policies. There is perhaps too glowing an anticipation of what can be done in trading with Turkey and Egypt. The demand for improved appliances and the best manufactures can scarcely be very great; but at the same time whatever trade there may be we ought to share largely in it. We concur with Mr. Cardwell in his views of the value of direct communication. We need it with every quarter of the globe, and when Congress and the Executive reach the conclusion that it is worth while paying something for the privilege we shall attain it, and until then we can scarcely expect individual enterprise to assume every risk and be denied even a reasonable compensation for services which the government expects to be rendered it.

LATE DEVELOPMENTS IN CANADA.

SINCE the Canadian Pacific Railway went into operation on July 5 last, the Dominion of Canada has, from an international point of view, become so important, commercially, that it may not be out of place to produce some figures showing the progress that has been made in our immediate vicinity since 1871.

The area of Canada is computed at 3,470,392 square miles. The greater part of this is comprised in the Northwest Territory. The seven settled provinces of the Dominion comprise about 805,140 square miles. Following are the latest returns relating to the population according to the census of 1881. The figures for 1871 are given for a comparison:

POPULATION OF DOMINION.		
	1871.	1881.
Ontario	620,851	1,923,228
Quebec	1,191,516	1,359,007
New Brunswick	387,800	321,223
Nova Scotia	285,594	440,572
Manitoba	12,728	65,954
British Columbia (including Indians)	33,586	49,459
Prince Edward Island	94,021	108,891
Northwest Territory	60,500	56,446
Totals	3,686,596	4,324,800

The imports in 1883-4 were valued at \$108,180,644, against \$123,070,283 in 1875, and the exports at \$91,406,496, against \$77,886,979. The customs duties collected in 1884 amounted to \$20,164,963, against \$12,548,451 in 1877.

According to the latest report there are of railroads actually constructed, 9,949 miles, and of those under construction, 1,565 miles; total, 11,514 miles. Canada ranks eighth in absolute mileage among the states and kingdoms of the world possessing railroad systems. Toward the close of 1885 the Canadian Pacific Railway, connecting the Atlantic with the Pacific Ocean, was completed, and on July 5, 1886, the first through passenger train over it reached the Pacific coast, and the company began to take through freight. The 3,000 miles between Montreal and Vancouver were traversed in 136 hours. When the road is thoroughly ballasted, the distance will be covered in 110 hours, and it is hoped a further reduction to ninety hours will be made.

As there is at present a mutual desire in England and her colonies to draw closer the bonds of union, the former will do everything in her power to promote Canadian interests in the Canadian Pacific Railroad, and the plea for so doing will be all the more practical and convincing since this route is 200 miles shorter between Asia and Europe than any of the American lines. This being the case England has besides a great strategical interest in this short route. Hence capital will be made to flow like water to establish a first-class steamship line between China, Japan and Vancouver to connect with the Canadian Pacific Railroad weekly and thus secure an immense through traffic of passengers and merchandise.

Meanwhile, Chicago is also making a great effort to become an important tea market, and the competition between the American Pacific railway lines and the Canadian Pacific will tend to keep freights at a very moderate figure. The result of what is now being developed by means of this competition across the continent will redound as much to the benefit of American trade with the East as to that of Canada.

Carrying the mails from China and Japan to the United States and Europe will be another item of rivalry between the lines. Passenger fares on the route will, consistently with reasonable profit, also range moderately. The entire traffic between Northern Asia and Northern Europe and America will thus, to a certain extent, be revolutionized, to the benefit of American and Canadian commerce, opening a new era, so to say, the beneficial consequences of which can hardly yet be duly appreciated, but which are, nevertheless, sure to come and likely even to surpass our present expectations.

PERUVIAN REGENERATION.

THERE are few Southern countries in which so much American capital has been and is still being invested as in Peru, in whose regeneration we are therefore directly interested. Peru has now entered upon the sixty-seventh year of her independence. The past seven years of war and civil disorders have brought her through distress and disaster to poverty; but there are tranquilizing signs of a determination on the part of her rulers and people to vigorously prosecute the work of regeneration and reform.

President Cáceres is acknowledged to have struck from the very commencement of his administration at the two principal evils affecting the country—the ignorance to which a great majority of the population, the Indian element, has been relegated, and the extravagance apparent in all branches of the government.

The Indians, comprising nearly five-sixths of the people, are to be educated and brought to know that their rights and privileges as citizens are on a par with those of their white neighbors. The taxes collected from them are to be expended in maintaining schools and missions among them and the severest penalties are to be dealt out to those who in any manner seek to injure or molest the Indians in their persons and property.

The President's attention has also been given to economical reform. Orders have been published and carried into effect, by which a large saving in the salaries in the different ministerial offices is expected, and the army and navy have been brought down to the most economical footing compatible with efficiency. In the departments large reductions have been made in the civil and military lists, and although there is a great deal of natural discontent on the part of the dismissed, Cáceres, having begun his reforms by relinquishing his high rank and pay as a general, places himself out of the line of righteous censure.

By virtue of the treaty of peace of October 20, 1883, Peru had to cede to Chili the department of Tarapacá, comprising 71,000 square kilometres; the department of Tacna, 53,000 square kilometres, occupied till 1893 by Chili, may by a plebiscite then also become Chilean territory permanently. Including

the latter, Peru still has an area of 1,072,496 square kilometres. The present population, inclusive of Indians, is about 3,000,000. The white population does not exceed 371,197; there are 52,588 negroes, 669,457 half-breeds, 51,186 Chinese, the rest being Indians. In the white population there are comprised 18,082 Europeans. Lima has a population of 101,488; Callao, 33,502; Arequipa, 29,237; Cuzco, 18,370, and Chiclayo, 11,325.

Since April last Peruvian bondholders have been endeavoring to make an arrangement with Peru, Chili, and Dreyfus & Co., Paris, so as to get the Peruvian foreign indebtedness consolidated, and the interest paid regularly in the future, reduced to a figure which the impoverished country may be able to pay. The foreign debt consists of the ensuing bonds:

Loan of 1869, Pisco-Ica Railroad.....	£264,680
Six per cent., 1870.....	11,141,580
Five per cent., 1872.....	20,437,500
Due Dreyfus & Co.....	4,000,000
Total.....	£35,843,760

There were in operation in 1883 1,638 miles of railway. People who hope for the speedy rehabilitation of Peru have great anticipations of the work to be done by William H. Cilley, the managing director of the Oroya Railway and Cerro de Pasco Mining Company, and a commission of mining engineers and experts sent out by a syndicate at New York.

The object of the commission is to carefully examine and report upon the condition of the mining district of Cerro de Pasco and the quality of the silver ores contained therein, in the interest of the capitalists who obtained from the Iglesias government the concession for extending the Oroya Railway to the Cerro de Pasco and the development of the silver mines at that place. This project, now apparently on the way to success, is regarded at Lima as the most important that could be originated as to the extent of the benefits to be derived from it by the country at large. The immense mineral and agricultural wealth of the interior, now sparsely brought to the coast and but imperfectly developed owing to the lack of cheap transportation and energetic enterprise, can be made productive and give to Peru a means of commercial exchange for abroad that will re-establish her balance of trade, while at home it will afford a lucrative opportunity for labor and intelligence that has hitherto been wanting.

The imports of merchandise into Peru in 1884 were valued at \$11,064,744, but the exports did not exceed \$7,958,625. Among articles imported there were—cotton goods, \$1,976,581; woollens, \$1,176,113; drugs, \$680,101; furniture, \$469,085; beverages, \$392,141; silks, \$339,611, and linens, \$144,309. The exports chiefly consisted of sugar, vigogne, alpaca and llama wool, cotton, rice and quinine bark.

Calendar Year.	AMERICAN TRADE.	Domestic Exports to Peru.
1885.....	Imports. \$1,478,790	\$716,001
1884.....	2,233,589	1,061,823

The imports are, in reality, less than they appear, the nitrate of soda still being credited by our Treasury Department to Peru, while it should be credited to Chili, which is now the owner of the nitrate deposits. The number of vessels arrived, as per latest returns, in a year was 9,176, of which 5,503 were steamers, of a joint tonnage of 7,210,383.

American capital being engaged in the completion of the Oroya Railway, originally undertaken and nearly completed by the deceased Henry Meiggs, formerly of San Francisco, and furthermore in the resuscitation of the famous Cerro de Pasco silver mines, to both of which enterprises allusion has been made above, further developments in that locality are watched with considerable interest, not only in this country, but in Europe. All wish Peru and the interests connected with her success, so that after the long and terrible ordeal through which the country has passed there may at length come a period of sound and lasting material recuperation and moral rehabilitation.

Communications.

Philadelphia.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA OFFICE AMERICAN MAIL AND EXPORT JOURNAL,
504 Walnut Street,
PHILADELPHIA, Pa., September 1, 1886.

MORE traveling is being done by persons interested in the export trade than ever before. Many who go abroad, externally for pleasure, have both eyes fixed on business. Not a few Philadelphians, now abroad, are looking up trade chances, seeing what Europeans want, and ascertaining prices that can be realized for goods. Last year a half-dozen did this and profited by their visit. The only thing is to go and see. Agents of American houses in European and South American countries are offering some encouragement, and pointing out the difficulties to be overcome.

Thomas M. Dawson, U. S. Consul at Barranquilla, Colombia, has been spending a few days in this city. He pointed out to your correspondent some facts that should not be lost sight of, some of them rather ugly facts. He says: "There is no outlook for commercial intercourse with the United States. Our manufacturers will not cut their goods to suit the trade of the South American country. There the unit of measure is thirty-two inches, while our unit in the yard is thirty-six inches. Another objection to American goods is that they are not properly packed. To reach a market, goods have to be carried on the backs of mules fifty-four miles over the Andes to an altitude of 8,975 feet. Often swift torrents must be crossed, and if a mule misses its footing, its pack is hurled down the stream. English merchants pander to this trade, and pack their goods in such a manner that they may be fished out of a steam in as good condition as they were before they were submerged. The Englishmen make goods of the proper width, too, and the result is that cheap goods are imported from England.

"Another reason why preference is given to England is because her merchants allow a credit of six, nine or twelve months without interest or commission. The high duties affect importation. In New York I bought some furniture, which cost \$168, including packing, insurance and freight. The duty on the furniture was \$394. The exports, which amount to \$11,000,000 annually, consist principally of hides, coffee and quina bark. The principal steamships visiting the ports are American, being owned by Cisneros & Co. and the United States Company of New York. A bar in the harbor is so dangerous that no sailing vessels attempt to enter. So many have been wrecked there that insurance companies demand a very high premium, and the owners of sailing vessels will not pay it, and do not attempt to pass the bar. The government is now negotiating with Mr. Eads for the removal of the bar. The present government has only been established about eighteen months and its credit is weak. The currency is worth about twenty-five cents on the dollar, and New York drafts command a premium of 75 per cent."

With all deference to our consul I have reason to know that the case is not so bad. However I am obliged to him for all that he has said. Philadelphians can pander too, after they learn how. They have pandered a good many locomotives into Australia, and the representative of the Baldwin Locomotive Works told your correspondent the other day that there was no reason why South American orders could not be secured in competition with British makers.

One difficulty is that our American manufacturers are too busy with our home trade and its development to rush after the uncertain foreign trade. But we are making progress. Let me give a few home facts, which though trifling still show how the wind is blowing.

R. C. Powers, 4200 Elm avenue, is turning out 60 dozen teapots per day, half of which go to Canada and Australia.

The Eclipse Manufacturing Company, 4210 Elm street, is an extensive manufacturer of rubber leather cements, shoe dressings, and rubber specialties, of which it ships largely to Europe. The cement is used for invisible patching.

Our old standby the American Machine Company reports an extraordinary demand for its various lines of goods, in which its Perfection scale comes among the first. Its new automatic Perfection scale for postal purposes is provided with a series of automatic weights. When letters or packages are placed on the scale, the pointer instantly and

without vibration indicates the weight to the fractional part of a unit. The Gem ice-cream freezer is liked. The A. M. Co. wringer is in good demand. The company's recently issued catalogue ought to be in the hands of all dealers in hardware specialties. The export trade has improved.

The Enterprise Manufacturing Company deserves its name. Any one will say it after an hour's visit. Its catalogue tells the story as carefully as it is possible, and it is a beauty in its way. One is tempted to say something new about each, for they deserve it, but I simply advise each interested party to get a late catalogue. The Medical Department of the United States army uses the meat chopper, which ought to be in every household as well. Its European and colonial trade would open the eyes of competitors, and its shipments for this summer are to England, France, Germany, Switzerland and in fact all over Europe as well as South America. It keeps 500 hands busy.

William Strauss, 327 Arch street, manufacturer of leather show-forms for displaying clothing, which are not affected by the weather, has a large and valuable trade. He also makes a line of men and youth's bodies, with or without heads, nickel plated and plain.

Lindley M. Elkington, 532 W. John street, is a maker of a superior article of palm-oil soap, and a brand called "Good Old-Fashioned Soap." He is also an extensive manufacturer of mill soaps, which he sells in packages of 25 to 100 pounds.

A look in at our wholesale confectioners shows that they are still holding their European trade, but under the difficulties growing out of instant imitations. This is flattering to our enterprise, but destructive to the trade we should have. Still our confectionery export is an important item.

The exportation of beer glasses, prescription goods and fine glass ware generally, not forgetting the American tumbler, which is tumbling all over the world, is growing. Our plate-glass makers at Creighton, Pa., have, they think, given the importation of plate-glass a set back from which it will never recover. A description of this process and a history of the progress of this industry would be interesting. American plate-glass is a success.

Out straw shoe exportation continues, and the novelty is evidently appreciated abroad.

A word as to keeping our imports. American ingenuity and enterprise are successfully restricting importations of foreign manufacturers, while crowding their own on other countries. Our upholstery manufacturers have well-nigh driven out the products of foreign workshops and one of New York's largest importing firms has a factory here which turns out the finest upholstery goods sold in the American markets. We will do with upholstery goods, and eventually with silk, what we have done with carpets.

I may state again what I have stated before, that occasionally an exporter is met with who will reveal his secrets only when assured that no one shall find out what he is doing.

Knick-knacks, tools, devices of one kind or another, which do not cost much, and which can be turned out by machinery, are finding in creased favor abroad. A few young mechanics are figuring how they can start up and supply the export trade, but the trouble is that they cannot wait on returns.

It would be a good thing if some sort of a concern was started which would make liberal advances on goods, very liberal, so as to enable small manufacturers to keep going.

Business is improving after a quiet summer. Our home trade is good in all directions. Labor of all kinds is more regularly employed than perhaps for years, and is better remunerated. Crop prospects are favorable. The industries are healthy. Orders are crowding in. Railroad building this year will double last year's. Mills, shops and factories are all oversold. Confidence exists everywhere. No reaction is probable. Machinery of all kinds is in active demand. Mexican trade in some directions is improving; in others is at a standstill. We are slowly working on to a stronger industrial basis.

The manufacturing interests are better organized than ever before, not only for defending the existing fiscal policy of the government, but also for conserving their mutual interests.

Labor, although compactly organized, is conservative. Employers have met organized labor half way, and have manifested an almost unexpected liberality in dealing with their employees in an organized capacity. Wages have been advanced in most crafts and avocations,

and will probably remain where they are for some months. Prices of all kinds of manufactured products are firm. Production is controlled within market limits.

The entire outlook is encouraging. Unsettling questions have not arisen, and the policy of government at home and abroad points in the direction of peace. P.

U. S. Ministers and Consuls.

Timber Trade of New South Wales.

CONSUL GRIFFIN.

THE growth of the timber trade of New South Wales, and indeed of all the Australasian colonies, has been extraordinary within the last few years. The total quantity of dressed and undressed timber imported into New South Wales during the year 1885 was 65,822,037 superficial feet, valued at \$2,296,760, against 49,608,825 feet, valued at \$1,903,900, for 1884, showing an increase of 16,213,212 feet for 1885. The imports from the United States increased from 13,782,746 feet to 23,165,235 feet. The rough or undressed American timber increased from 10,623,850 feet to 19,728,436 feet, and the dressed timber from 3,121,896 to 3,436,799 feet.

AMERICAN TIMBER.

The United States takes the lead of all other countries in the export of timber to this colony; New Zealand comes next, and British Columbia is the third on the list. Norway, however, furnishes the largest share of dressed timber, a fact probably occasioned by the low price of labor in that country. The imports from America consist principally of pine and red-wood from the various States and Territories on the Pacific Slope. The saw-mills of California, Oregon and Washington Territory rank among the foremost in the world, and are equipped with the best and latest improvements in milling machinery, &c. The sawn timber of the Pacific Slope is often 150 feet in length, and for general building purposes there is perhaps no other on the globe that will begin to compare with it. New markets are being opened up for it every day, and active preparations have been made for its shipment in larger quantities than ever, not only to Australasia, but Japan and other countries.

The following named are some of the leading timber-mill companies engaged in exporting lumber to the Australasian colonies from the Pacific Coast of the United States: The Puget Mill Company, the Washington Mill Company, the Port Blakely Mill Company, the Port Discovery Mill Company, &c.

The popularity of American lumber in the Australian colonies has excited much opposition on the part of those interested in the sale of Australian timber, and strong efforts are being made to have the government increase the tax upon the timber imports. The present duty is two shillings (forty-eight cents) per 100 superficial feet on dressed timber, and one shilling (twenty-four cents) per 100 feet on rough or undressed timber.

It has been urged that the duty on the former should be increased to five shillings (\$1.21) and on the latter to three shilling (seventy-two cents) per 100 feet. It is thought that the increase of duties will bring about a more general use of home-grown timbers, such as the Australian hardwoods. It is said that the Australian hardwoods do not take fire readily, and among the reasons assigned for the destruction of the Garden Palace at Sydney some years ago is that it was built of Oregon pine instead of Australian wood. The reason, however, assigned for such a tax is a very unsatisfactory one, and could be applied with equal force to all kinds of material easily set on fire.

AUSTRALIAN TIMBER.

The light, soft, straight-grained woods suitable for building purposes are becoming very scarce in Australia, except in places difficult of access. The colonial pine is by far the most suitable of the Australian soft woods. It is close-grained, free from knots and easily worked. It is very generally used for flooring and spars, joiners' and cabinet work, &c. It is shipped to Sydney from the northern and southern districts by steamers. The logs measure from 100 to 120 feet in length. Their diameter is from 2 to 3 feet. The greater part of colonial pine is obtained from alienated lands, bordering the rivers in the northern districts. It is abundant on the crown lands, some distance from navigable water, and has to be drawn by bullock teams over rough country.

Boards of this timber sell in Sydney from 12 shillings (\$2.88) to 16 shillings (\$3.84) per 100 superficial feet. Logs from 7 shillings (\$1.68) to 9 shillings (\$2.16) per 100 superficial feet, girth measurement.

HARD WOODS.

A great part of the forests of Australia consist of a class of trees belonging to the natural order of *myrtaca*, or species of eucalyptus. About twenty-seven different varieties have been described. They attain gigantic size, and are unquestionably the tallest trees in the world. One of them, in the Black Range of Berwick, measures 500 feet from the ground to the topmost branch, being nearly twenty feet higher than the Pyramid of Cheops. A fallen tree near Healesville, Victoria, measured 480 feet. Trees of the species known to science as *eucalyptus amygdalina* (the peppermint) are not infrequently met with in the mountain ravines, varying in height from 300 to 480 feet. The leaves of the eucalyptus are entirely leathery. They grow perpendicularly, so that both sides are exposed to the light.

These giants of Australia are not so impressive as the big trees of California, on account of the greater bulk of the latter.

The timber of various kinds of eucalyptus is extensively used in Australia for building purposes and cabinet work. It is, however, very difficult to work on account of its extreme hardness, and the wood is often injured with stains of gum. But while many varieties are valuable for certain purposes, it is altogether out of the question ever to expect them to take the place of the softer and more easily wrought woods imported from America.

At a meeting of the saw-mill proprietors, recently held in this city, the chairman, Richard Kemp, stated that the controversy going on in the press as to the comparative merits of Oregon pine and Australian hard woods had brought a very important subject before the people, and that he thought the weight of the argument was in favor of the hard woods. He said, moreover, that the duties on imported timber should be increased in order to protect the home industry. He had received a large number of telegrams from saw-mill proprietors in various parts of the colony expressing sympathy with the movement to secure an increase of duties, and a leading architect had informed him that the Australian hard woods, if properly seasoned, could be used with better advantage in the construction of certain buildings than any other kinds of timber. It was pointed out at the meeting that the expense of getting colonial timber to the Sydney market was twice as much as it cost to bring lumber all the way from America, and it was said that the reason for this is that the Americans ship their lumber in large vessels, whilst the Australians use very small steamboats which are run at a very heavy cost. Before the meeting adjourned a resolution was passed authorizing the chairman to appoint a deputation to wait upon the Ministry and urge upon them the necessity of increasing the duties on imported timbers.

In spite of everything said in favor of the use of the hard woods of Australia, it is well known that they are seldom sound at heart, and when sound the wood has often to be rejected, on account of its extreme brittleness.

One of the most valuable of the hard woods is the *Tarrietia*. It is used for posts, sleepers, piles, bridges, &c. The length of its logs is from 80 to 100 feet. The diameter is from 2 to 3 feet.

Another tree called *blackwood* is very hard, dark colored, and prettily marked. Its sap-wood is white or yellow and easily wrought, and is strong and durable. It is used for furniture, fencing, bridges, staves, carriages, pianos, cooper and cabinet work. It is said to be almost imperishable in water. It is plentiful on the Blue Mountains and on the more southern coast of the colony.

About one-fourth of the area of this colony, east of the dividing range and the main south-coast range, is timbered with trees of fair quality, principally hard wood, but very difficult to reach, as they are located in very rough country. On the timber reserves, scattered over this area, the natural trees are estimated to number from 6 to 120 per acre.

One great obstacle to the use of Australian timber is that very few trees of the same kind are found growing together. I have never seen in any part of Australia forests of one kind of trees, as in America. New Zealand has extensive forests of kauri pine, but that colony does not form a part of the great island continent.

NEW ZEALAND TIMBER.

The great bulk of the timber imported into New South Wales from

New Zealand consists of kauri pine, a product peculiar to the North Island of that colony and not found anywhere else in the world. It is straight-grained, soft and easily wrought. The principal objection to its use is that it is apt to shrink, endways, but this obstacle is more or less avoided by the exercise of care in seasoning. It is, however, a grand timber, and is so generally used in Australasia that New Zealand has developed the largest timber industry in the southern hemisphere. Some of the saw-mills there employ as many as 500 hands, and the Auckland Timber Company, in their town and country mills, give employment to about 1,300 hands. The total annual output of timber of the whole of the colony is estimated at about 200,000,000 superficial feet. The number of saw-mills in operation at the end of 1885 was 209. According to the last official report on New Zealand forests, there are in Southland still 312,467 acres of virgin forest out of 347,797 reserved by the crown. There are 36 saw-mills in operation, employing about 700 men, the average weekly expenditure for wages being \$6,000, or about \$325,000 per annum, the total output of the district being about 24,000,000 superficial feet of inch thickness per annum. Over 300 acres of forest are denuded yearly. In the district of Otago, with an area of 13,759,000 acres, there are only 100,000 acres of forest land. There are 11 saw-mills in operation, and the annual output is 7,600,000 superficial feet. In Canterbury out of an area of 8,693,000 acres only 374,350 acres are under forest; 21 saw-mills are in operation, the total output being 10,000,000 feet.

Westland province, out of 3,045,000 acres, has 1,897,558 acres covered with splendid forest, in addition to 632,519 acres of scrub timber. The present output scarcely exceeds 3,000,000 feet, as many of the mills are only on one-third time. In the Nelson province, out of 7,000,000 acres, an estimated area of 3,290,000 acres of forest land are still in the hands of the crown. Twenty-two saw-mills are at work, and the output is equal to 5,260,000 superficial feet. A fifth of the area of Marlborough (2,560,000 acres) is forest land. There are fourteen saw-mills, and the output is estimated at 8,606,340 superficial feet per annum.

The district of Auckland, however, takes the lead of all the others in the production of timber. Out of 17,000,000 acres in this district 7,200,000 acres are covered with forests of which the crown still holds 1,606,350 acres. The number of saw-mills are estimated at forty-three, the annual output being 48,631,206 superficial feet. The value of the timber exported from Auckland during the year 1885 was \$699,760.

American Meats in Glasgow.

CONSUL UNDERWOOD.

HAVING noticed the marked difference between the prices quoted for American hams and bacon and those quoted for Irish and Scotch products, I applied to a well-known house, Messrs. Barclay & Brand, for information on the subject of preparing and shipping these articles, and I have been favored with their views, based upon a long experience in the business and upon an intimate knowledge of the wants and tastes of this community. I have transcribed and herewith send their reply to my questions. American hog products are largely consumed in Scotch markets.

The increase has been very great in late years. No doubt the cheapness of the articles has stimulated the consumption, but the improvement in quality from better breeds of hogs and from corn-feeding has greatly helped to develop the trade.

The old prejudices against American meats are being removed; and this might be greatly hastened by more care and attention to the wants and tastes of consumers.

The taste of the British public has become more fastidious as to the condition in which bacon and hams are presented, and it is now almost impossible at anything near relative values to place meats that are salt or overcured, or that are not cut and trimmed with symmetry and neatness. The great desiderata now in all classes of meat are freshness and quality.

The chief competition here with American meats comes from the supply of Irish and home-fed hogs. In Ayrshire, where cheese is largely made by farmers, pigs are reared in considerable numbers; and as soon as they have size and condition they are sent to the market. From the North of Ireland, too, there is a steady supply for many months in the year—pretty heavy from September on to Christmas.

This pork (from Scotch and Irish farms) comes to our market mostly in clear sides; sometimes the hams are shipped, but generally Irish curers take these for smoking, but the meat is shipped immediately after killing, and so it reaches the shopkeeper as nearly fresh as it can safely be.

It will be seen from this at what disadvantage American meats come to the British consumer, after having been cured in the West and lying in salt from twenty-one to twenty-eight days during the transit. Meats so treated must be far too salt, and cannot be at all in such condition as to color and natural juices as the Irish and Scotch fresh bacon.

The main object of the American curer, if he wishes to place his meats on the market here so as to compare favorably with home supplies, should be to devise means to cure his meats only to the extent of keeping them sound until they arrive. But meat must be perfectly sound. Any latent heat will develop in transit, and the meat may come here sour or even tainted. Still, it may be mildly cured and arrive here as it should be.

Boxes should not be filled up with coarse, strong salt. In summer, of course, great care ought to be exercised.

At present our market wants are poorly supplied in this particular. Strong meats, either from America or here, are avoided. A quick dispatch after killing and a quick sale to consumers will enable importers to meet the competition of home supplies.

The most suitable cuts of bacon for this market are long, clear middles, Irish cut middles; hog, in four quarters and boned, and the Cumberland cut. The lighter the average weight the better. Heavy averages are not easily sold, and not desirable to ship in quantity. Hams sell freely, the long-cut finding the largest outlet. Short-cuts, Manchester and Preston cut and Staffordshire cut are sold, but never as well as the long-cut. The average weights in long-cut hams, most suitable for the trade, are 14 to 16, 16 to 18, 18 to 20, and 20 to 22 pounds.

There is a special large trade in heavier averages for boning, especially when cheap enough to be comparatively better value than the Irish bacon.

They must be mild-cured for this purpose, but the particular cut does not matter much.

The lighter averages are nearly all used for smoking, and in these the long-cut is always preferred. In fact, it is only now and then, when long-cuts are scarce and dear and the others are cheaper, that they are used for smoking.

Hams for smoking should be uniform in size—that is to say, boxes should be filled with hams all as near one size and weight as possible.

Many curers huddle together large and small hams, and bring out in a lot an average which misleads. Hams should never be packed of extreme weights to make an average.

Any curer who does this places his brands at a great disadvantage. In first-class brands no blemished or bruised hams should be packed.

There is a good demand for boning, for blemished or bruised hams—if otherwise sound—at their value, to suit a cheaper retail trade.

American smoked meats do not generally find ready sale here. Consumers do not like meats heavily smoked (any more than heavily salted). They prefer them smoked as lightly as possible, and they like to use them as soon after smoking as may be.

The packing of smoked meats for transit is against the trade. Ham-curers here furnish the hams lightly smoked and in nice, clean shape, just like the famous Irish smoked hams.

Shoulders are freely sold here, especially when the price admits of their being offered, boned and rolled, to shopkeepers at or under 28s. (\$6.32 per 100 pounds) per cwt.

When the import price is at 20s. per cwt. the sale naturally increases. The desirable weights are 14 to 16 pounds and 15 to 18 pounds.

Meats generally suit best when dry-salt cured, but a steady trade is done in long clear middles in pickle, packed in barrels. Care must be taken that the pickle is not too strong. Such pickle as is used for mess pork would render the meat much too salt on its arrival.

The troubles have been with this mode of packing either that the meat arrives too salt or too fresh. There is a happy medium, in which, while the meat is kept perfectly sound, it comes to hand mild

in flavor and in nice bright color and condition. In this state it is preferred to dry-salted meats.

Hams for boning purposes may be similarly shipped in pickle in barrels.

In regard to salt pork, the grade sold most largely here is prime mess. This article is for ship's use.

Sugar-cured meats have never met with a free sale here, salt-cured being always preferred.

Borax-cured hams have been coming lately. The trouble is with their condition. If rightly handled by packers this style of preserving meat may grow into favor.

As before suggested, the style of cutting and trimming the pieces is of the utmost importance. No show of meats anywhere is more attractive, in form, color and cleanliness, than the display in Glasgow shops.

Lard is salable in tierces and in packages of 28 and 50 pounds. The object should be to give a good package, clean and well made. The lard should be free from singeing (or burning), perfectly sweet, pure and unpressed.

Roofing Material in India.

CONSUL STUDER.

I AM informed that the manufacturers of black roofing slate in the United States are desirous to obtain information respecting the uses of that article in India; that the slate area in the State of Pennsylvania was almost inexhaustible and as rapidly developed as the demand increased; that the manufacturers were desirous of extending their exportations to India; that large quantities had been shipped to Australia and other distant countries.

1. For all substantial buildings (governmental, mercantile and residential) the half-round tile (made of brick clay and baked) is used. These are easily laid (joining in and out, under and over, and overlapping each other) and make an excellent, durable, as well as cool roof in a tropical country, as they furnish air currents throughout. (In a cold climate, unless covered with mortar or cement where they lap and join, they would not answer.) A tile roof is, of course, very heavy, but as there is an abundance of very hard wood out of which to make timbers and frames able to bear it, it does not matter. Coolie labor is very cheap (ranging for all India for from eight to twenty cents per day), clay and fuel abundant, and as a rule very near each other, and therefore tiles can be had cheap.

2. For plantation and cheap European residences, bungalows and the dwellings of the native population in suburban and country districts and on farms, all having, as a rule, far-projecting roofs, the leaves of the attap palm, the kadjang (a species of huge grass growing on low, marshy river bottoms, shallow lakes and lagoons in vast fields, as I have seen in the swamps of the Kassang River near Malacca), and sundry other tough, broad grasses and fibres suitable for thatching are used and give general satisfaction, being very abundant, cheap and answering their purpose well. A well-made attap or kadjang roof will last from three to four years, when it becomes brittle and as a consequence leaky, and must be removed.

3. For the roofs of coal-sheds, wharves, warehouses, landings, bazars and markets, verandahs and other airy, light, shed-like structures, having no walls and only posts or brick pillars for support, corrugated sheet-iron or fluted zinc sheets, this, with steadily increasing tendency, is used. This kind of roofing was first introduced here about twelve years ago.

As to black slate roofing, it has been used, to my knowledge, on two new government buildings having mansard roofs (within the last two years, *i. e.*, police headquarters and post-office), one mercantile building and two churches. This slate, as none has ever been kept for sale here, was imported from Wales, in England, where, there being large quarries of it, I am told it is very cheap.

Firms in the United States engaged in the manufacture and export of slate can easily find out whether they can successfully compete with English quarries in Eastern markets, the cost of freight being about the same from our Atlantic as from ports in England (on sailing vessels, I mean).

Summed up, upon careful consideration and reflection (referring more to my consular district than all India), I hardly think that the sale of slate for roofing, from any country, will ever amount to much in the tropical

part of Asia. But as some will be used, perhaps more and more as civilization, with a higher taste for architecture, advances, it would, I think, be well for our American slate exporters to create agencies in the principal ports of India and to forward to them trial consignments (not too small) of their productions. I know of no better way, if they can only compete with English or European exporters. It must be borne in mind at the same time that Calcutta, and perhaps Bombay, excepted, we have no American firms in British or Netherlands India, and *must* rely on foreign merchants for the sale of any kind of American merchandise.

I would recommend the creation of agencies at the following ports: Calcutta, Rangoon, Madras, Bombay, Colombo (Ceylon), Singapore, and Penang, Bangkok (Siam); Batavia, Sourabaya and Samarang in Java, and Manila (Philippine Islands).

Mineral Products of Corea.

MR. FOULK, CHARGÉ D'AFFAIRES.

THE only practical effort to work mines in Corea that has been made as yet by Western foreigners was that of Jardine, Matheson & Co., a wealthy commercial firm of China, in 1883-4. This firm, after negotiations with P. G. von Mölendorff, who then served as general adviser to the Corean Government, sent a well-equipped party of foreigners and Chinese into the country from Seöul, in the winter of 1883, to make an examination with the view of securing mining concessions in case minerals were found in paying quantities. The party established a camp or two and remained in the country, its members making frequent individual visits to Seöul and Chemulpho, until about August of 1884.

Early in the spring of 1884 the firm established a head office at Chemulpho, moored a large hulk in the harbor there, and started a steamer to ply between the port and Shanghai. From this it is to be inferred that the company expected great results.

The party at work in Corea began their examination near Seöul and continued it thence in a northerly direction until it came to the main chain of the coast mountains to the south of Wönsan (Gensan). It may be said the examination was entirely confined to a narrow belt of territory lying to the north of Seöul, between the northern tributaries of the Seöul River, and about one hundred miles long.

From first to last the work of examination was attended with great difficulties. The poor accommodations for living in the interior of Corea, the severity of the weather, the wretched roads and wild, mountainous character of the district; ignorance of the language and customs of the people, distrust of the natives, most of whom have never seen or heard of Western foreigners—such were natural enough obstructions. But in addition to these, it is quite evident that the company did not have the support and assistance of the government in its work, and that Mr. Von Mölendorff alone conducted the examination for Corea, without the government having much, if any, voice or interest favorable to the success of the examination. The geographical, social and political conditions of Corea are such that without governmental encouragement and direct assistance success cannot attend any great venture in the country.

It is significant to note that the district examined by Jardine, Matheson & Co. is one of the very few *not* generally described by Coreans as rich in minerals.

In March, 1884, it was made known that galena had been discovered by the party in Yöng Phyöng prefecture, but the silver was so small in amount that work would only pay by using extensive reducing machinery. But no traces of coal were discovered. Full reports of the work were not published, yet it is generally believed the results of the examination are known. The following notes are taken from an English Blue Book, containing translation of an article written by a Chinese who was with the party.

LOCATION OF DEPOSITS.

Gold is reported to be found at Hakwa-U and San-Kwa-U, two places about three miles apart, the first one and a half miles from Yang-tök prefecture, and gold was obtained from these places in 1883.

Silver was found in Yöng Phyöng prefecture, about forty miles from Seöul, in small quantities (in galena). Lead was plentiful. Absence of coal, remoteness from the coast and bad transportation, &c., preclude working these mines at present.

Copper mines, which have been worked by Coreans, were found at

Ni-shil-tong, in Yang-tŏk Valley, and also at a place about eight miles eastward of Kinewha prefecture. Copper is mined also at Chŏng-nŏ, near the boundary of Kum Sotŭg prefecture, and the yield is reported as fair.

At Sokok, some twenty miles beyond Kum Sotŭg, a copper mine in a deep gorge is reported.

Lead was being mined by Coreans in two mines, 800 and 500 feet deep, near Sokok, some fifty-nine to sixty pounds only per day being produced. The yield is sold at Sokok.

Silver is found in the lead ore of Tang Hyŏng. It is reported that there are iron and copper mines at Clihimbo, Yŏng Phyŏng, Kim-wha and Kum Sotŭg, which will bear working for thirty or forty years and produce paying quantities. No traces of coal were found.

In June, 1884, Jardine, Matheson & Co. sent an expert mining engineer to join the party in Corea. He made several visits of inspection along the line from Seŭl to Wonsan, and visited some districts outside of the belt in which the party had been working.

His examinations were very superficial, and he returned to Seŭl unabashed to show any very satisfactory results. During the summer of 1884 gold dust and nuggets were very plentiful in Seŭl, and I am certain that this engineer endeavored to buy specimens of Korean gold in Seŭl, that he might take them to the head office of his employers in lieu of those he had not been able to find himself.

At about this time the company sent to its camp in the neighborhood of Yang-tŏk an American named James Graham, a seaman by profession, who had mined in California. This man kindly treated the natives and set his few coolies to work at pan-washing in some rice fields. He at once produced gold in considerable specimen quantities in dust and large rounded nuggets. He returned to Seŭl very soon and made his report. Graham, who had once served with me on board the United States steamer Monocacy, exhibited his find to me—a packet of dust and nuggets worth about \$400. He described to me the locality in which he had been working as very rich in gold, and stated that pumps only would be needed to make the yield of washing in the Yang-tŏk valleys very valuable.

While he was at work in the rice-fields an officer came to complain that he was drawing water from the fields and otherwise injuring them. Upon this he stopped work at once.

Promptly upon the receipt of Graham's report, Jardine, Matheson & Co. began negotiations with Mr. Von Mölendorff to get a franchise of mining rights. He failed, however, to procure it, and the government now began to show much interest, perhaps surprise, in Jardine, Matheson & Co.'s venture. The firm endeavored to secure rights by other means, but failed in every instance. It finally abandoned its intentions to work mines in Corea, and removed its office, the cargo hulk and mining party from Corea toward the close of 1884. In the following spring Graham endeavored to secure a position under the Korean Government to enable him to work gold washings for it.

MINING PRIVILEGES.

There is no doubt whatsoever that in China and Japan it is believed that Corea is rich in minerals, and more particularly gold. Yet it has been the rule heretofore for the natives of those countries to present the most disparaging reports of Corea. At the same time it will be observed that Japanese and Chinese are crowding into Corea with all dispatch, and forming colonies where permitted. Their trade is always increasing, and inasmuch as the exports of Corea are few and poor, while Chinese and Japanese imports are considerable, and that Corea has no coinage or currency acceptable abroad, it follows that there must be a constant and considerable flow of the crude precious metals of Corea into Japan and China.

In the autumn of 1885 the Chinese commissioner in Seŭl and his assistant made application for mining rights in Corea to the King.

They proposed sending to the gold districts of the country gangs of thirty to forty Cantonese Chinamen who had mined in the United States. Twenty per cent. of the net profits in gold was to be the share of the Korean Government.

The application failed abruptly, and was regarded as being very extraordinary in the terms. At about the same time certain Germans made application for mining rights, but were asked to wait until "next year" for its consideration. It has been several times stated by the Korean Government that it is not prepared to consider propositions in regard to mining, but will do so when it shall have secured

competent foreign advisers for its service. The disposition of the government is to guard its mines jealously, and to be the actual proprietor of them in case they are to be developed after the Western methods of working.

POSITION OF MINES.

All Coreans proclaim here that there is much gold and other mineral wealth in the country. From very ancient times gold and other mines have been worked in Corea, and their localities are widely known. It is a great mistake to suppose that Coreans are ignorant of the localities of mineral products of their country. There is probably no country in the world where the mass of the people are better acquainted with the geography of their own land than Coreans.

The excellence and great number of maps to be found is remarkable. There are, in even the smallest village, maps on large scales and showing minute details of their localities. The localities of all the principal products, natural or manufactured, are well known to even the children of ordinary intelligence.

Phyŏng-au Province is generally spoken of as the richest in gold, the chief locality being Yŏng-wŏn, a remote inland town, where gold has been produced from very ancient times.

In Ham-Kyŏng Province (N. E.) at Yŏng-hung there are from twelve to twenty washings which are now the most productive in the country. This place, Yŏng-hung, is but a few miles north of the treaty port of Wŏnsan (Gensan), whence the largest part of Korean exported gold is carried in Japanese steamers. The Japanese evince a very hearty interest in these mines.

During the fall of 1885 the government sold permits to private individuals to work at these places for a period of five months, a small percentage of the gold to be presented to the government. It would appear that the government has never worked for itself continuously any gold mines. Referring to the mines at Yŏng-hung, which are often visited by Japanese, the director of the engineering association of Japan, Ito Yajiro, writes as follows: "Yŏng-hung in Ham-Kyŏng Do has twelve gold mines (one of which, however, is closed, owing to its proximity to a royal tomb), and in these 5,600 laborers are (now) employed.

"The exact amount of the output of these mines cannot be ascertained, owing to the defectiveness of official regulations. It is known for certain that the miners present to the government, and to some of the public officials, gold obtained, at the rate of 60 per cent. for the former and 30 per cent. for the latter, amounting to 50,400 pounds a year, but any quantity obtained beyond that weight is sold secretly by the laborers." It has been stated to me that at present (March, 1886,) the government receives about thirty *nyang* of gold per month from the Yŏng-hung mines.

The winter has been very severe, and work could not be carried on at the eight other places stated above to have been farmed out by the government in the autumn of 1885.

At Unsan, in Phyŏng-au Province, there is said to be large deposits of gold dust some five or ten feet under the surface of the ground, but the quantity of metal to be obtained is too small to make the work of the Coreans profitable.

Silver is found in Kyŏng kui, Chhung-chhŏng, Chŭla, and other divisions, but is not commonly worked. Whenever officials travel to Pekin, a quantity of silver is dug from the mines, one-half of which is worked into bars and the remainder retained as treasury reserve, and 2,000 pounds are given to each ambassador to the Chinese capital.

OTHER MINERALS.

Copper mines, though found here and there in Kyŏng-kui and Kyŏng-sung provinces, are only occasionally worked, when there is a demand for copper coins or when the ore is in demand for commerce. The annual output is estimated at five or six thousand pounds.

Two or three good veins were discovered in Phyŏng-au Province many years ago. Iron of a superior quality is obtained in all but the two northern provinces.

Coal is found in large quantities between Hamhung and Ou Sŏug in Ham Kyŏng Province, and one or two veins are exposed in Kyŏng-sung Province. Nothing is yet known as to the continuity of these veins, but the outcrop bears a slight resemblance to those of Chikuzen (Japan).

From Mr. Ito's report it would appear that the exports of crude gold and silver from Corea are as follows from 1881 to 1884: Gold, 3,785,-

033.191 yen; silver, 387,769.444 yen; making an average in round numbers of \$1,200,000 worth of each metal per year.

MINING METHODS.

Corean methods of working gold mines are very primitive. The tools employed are of the simplest kind, and are only those for washing out the gold from the soft earth of the valleys. Quartz has probably never been worked.

Quicksilver is somewhat used in collecting gold after washing. It may be, however, that gold will for many years be best obtained by washing in the valley.

The country presents the evidences of very great geological age, and the hills are very generally in great areas, made up of decomposed granite and other rocks washed down into low foot-hills.

Tunnel mines are known to be in existence, more particularly in the northern provinces. Some are said to be very deep and their ventilation so bad that miners cannot remain in them any length of time.

Mining laborers are said to number 60,000.

Iron is said to be very abundant at Chai-ryōng, in Whanghai Province.

Coal has been found recently in large quantities and in fair quality in Phyang-au Province, near the capital city, Peng-yang, and on the banks of the Tatong River. This locality, which may be described as that of the mouth of the Tatong River, would seem to present some valuable features as a field for Western enterprise.

The river is navigable for quite a distance. Near it are the two celebrated gold districts of Whanghun province, and on it and not far from these mines is the large coal deposit above referred to. The neighborhood is well populated, and is reported to be thrifty in many ways.

FUTURE PROSPECTS.

As yet no competent mining engineer, geologist or mineralogist has made examinations in Corea, either private, or under the patronage of the Corean Government, from whom statistics as to mineral riches may be obtained. While the question is an open one, as measured by the absence of statistics, the evidences we have, such as they are, go to show that Corea as a field for mining enterprises will attract much attention in the future, and may prove to be much richer in mineral products than she has been represented by her neighbors.

It is very possible that belief in Corea's great mineral riches is a factor in the cause of the embarrassing political situation the peninsula is placed in between China and Japan, and this embarrassment may be very greatly augmented should a belief take root in the European nations whose interests have already been drawn politically toward Corea.

Ginseng Cultivation in Corea.

MR. FOULK, CHARGÉ D'AFFAIRES.

THE ginseng of Corea as ordinarily spoken of is cultivated. It is of two kinds, named by color—red ginseng (Heng-lum) and white ginseng (Pak-lum)—both kinds being the same root. White ginseng is the plain root, washed and dried. It is superior to the red ginseng to Coreans, who say that the process of curing preserves, but reduces the strength of, red ginseng.

White ginseng is abundantly sold in Corea, and enormously used as a strengthening and blood-purifying medicine.

Red ginseng is cured white ginseng.

By law it can only be cured by the government at one place. The curing is a process of steaming and prolonged dyeing, which solidifies the white root, and changes its color to a fleshy pink. When broken, red ginseng presents a glossy, brittle section.

Red ginseng is not an article of ordinary trade, and may not be exported under the treaties of Corea. The whole crop is carried to China by the annual embassy, and the proceeds of sales belong to the King personally.

From personal experience and observation I am assured that Corean ginseng is an active, strongly-heating medicine. It is most commonly taken in the form of a concentrated infusion. The fresh root is sliced and eaten with honey. The use of it must be attended with caution. It often produces boils and eruptions, sleeplessness and flushing of the body and other temporary derangements of the system in the course of its purification.

Coreans say that only ten out of every hundred persons in their own

country may use ginseng with the above-described effects, but say also, that in every case the use of ginseng is beneficial as purifying and strengthening.

The best ginseng is the wild root of and above thirty years' growth. Such commands a fabulous price and is not ordinarily obtainable or ever in the market.

Western people appear to regard the virtues of ginseng claimed by Orientals rather contemptuously—as imaginary and based on superstition. The evidences are that the mystic value attached itself to ginseng after its virtues had been practically ascertained.

Foreign Notes.

Argentine Republic.

Passenberg & Co., Buenos Ayres, state, with reference to the slaughtering of cattle, that up to July 15, including Rio Grande, there was a falling off of 65,000 head, as compared with the results of the 1885 campaign. Some 15,000 dry hides had been bought for the United States and 10,000 for Europe on the basis of 47 rials for classified 23-pound Buenos Ayres. Stock, 29,300.

About wool H. H. von Eicken remarks, same date, that hardly anything had transpired, there being no receipts and hardly any stock. Shipments out of the last clip amounted to 258,958 bales against 286,100 in 1885. There was much eagerness displayed to buy wool of the new clip to arrive.

Brazil.

The *Diario Official*, of Rio, publishes in full the precise coffee export figures for the last crop year ended July 30, as compared with previous campaigns. This is as follows:

RIO DE JANEIRO.				
	1885-6.	1884-5.	1883-4.	1882-3.
To Europe.....bags.	1,051,415	1,266,129	959,717	1,674,583
United States.....	2,449,166	2,673,384	2,029,705	2,627,084
Cape of Good Hope.....	61,880	99,840	73,693	97,365
La Plata, &c.....	52,221	58,458	39,439	43,950
Totals.....	3,614,682	4,097,811	3,093,545	4,443,282

SANTOS.				
	1885-6.	1884-5.	1883-4.	1882-3.
To Europe.....bags.	1,160,150	1,655,000	1,464,450	1,480,950
United States.....	468,100	466,900	409,100	318,250
Coastwise.....	4,900	10,650	27,300	11,900
Totals.....	1,633,150	2,132,550	1,900,850	1,811,100

RIO AND SANTOS TOGETHER.				
	1885-6.	1884-5.	1883-4.	1882-3.
To Europe.....bags.	2,211,565	2,921,129	2,415,167	3,155,533
United States.....	2,917,266	3,140,284	2,438,805	2,945,334
Other countries.....	119,001	168,948	140,423	153,215
Totals.....	5,247,832	6,230,361	4,994,395	6,254,082

About the new Pernambuco sugar crop, Borstelmann & Co. write from Pernambuco, July 27, that even heavy rains cannot do harm to the canes and that a large crop is expected. Old sugars were exhausted and business in new sugars would commence toward the end of August. Shipments since October 1 had been 90,172 tons, against 115,256 tons the previous season. Shipments from Maceio had been 156,826 bags, against 523,689 in 1885. At Bahia, same date, the sugar market was quiet at 1,350 reis the arroba, at which figure a remnant of 15,000 bags could still be had from first hands. Cocoa was higher, 2,500 bags selling at 8,400 reis. Nothing was doing in rosewood, while 2,000 arrobes redwood fetched 800 reis for Havre.

Burmah.

The rice shipments to Europe up to August 1 were as under:

	Per steamers.	Per sailing vessels.	Total.
1886.....	320,453	348,506	668,959
1885.....	342,704	307,175	649,879
1884.....	451,070	293,913	744,983

AFLOAT FOR EUROPE ON AUGUST 1.			
1886.....	19,735	258,586	278,321
1885.....	41,610	237,275	278,885
1884.....	51,557	225,448	277,005

SHIPMENTS TO EUROPE FROM AUGUST 1 TO DECEMBER 31.			
1885.....	67,482	61,710	129,192
1884.....	90,535	33,156	123,691
1883.....	95,959	13,799	109,758

STOCK IN ENGLAND ON AUGUST 1.			
London.....	1886.	1885.	1884.
Liverpool.....	26,606	19,578	35,226
	35,430	43,320	53,170
Totals.....	62,036	62,898	88,396

Cape Colony.

Poppe, Schumhoff & Gutterz, Port Elizabeth, July 31, express themselves about the wool situation to the following effect: The favorable advices from London have created a feverish excitement in our wool market, both for shipment and on speculation at a steady advance, all available wool being bought up. Of

grease wool, some heavy lots of Carnarvon and Victoria were taken for the United States at 5 to 5½d. Receipts of short grease wool have been light and the few parcels of Rouxville and Barclay were easily placed at 4½ to 5½d. Stocks of grease there are none, and none are expected soon.

China.

Siemssen & Co., Canton, report the total tea export from all China to July 1 to have been:

	1886-7.	1885-6.
To England.....lbs.	56,840,787	49,984,085
the United States.....	3,302,543	1,911,361
the Continent, without Russia.....	475,485	22,560
Russia.....	9,439,310	6,423,866
Australia.....	6,353,654	.....
Totals.....	76,411,779	58,341,872

Import into England during the first seven months:

	1886.	1885.
From China.....lbs.	70,987,325	51,838,622
India.....	27,752,170	24,691,552
other countries.....	3,008,606	2,651,451
Totals.....	101,748,107	79,181,625

	Home consumption.	Export.
1886.....lbs.	101,828,507	24,151,166
1885.....	115,259,581	21,388,000

Decrease.....13,431,074
Increase.....2,763,166
Stock in England, August 1, 78,995,587 pounds, against 59,980,137 pounds in 1885 and 86,466,875 in 1884.

France.

Sugar statistics were favorable in France, as per table relating to the July movement, published in the *Journal des Fabricants de Sucre* of August 20:

	1886.	1885.
Importations.....tons.	19,200	26,200
Exportations, raw.....	1,000	300
Exportations, refined.....	9,700	6,500
Net consumption.....	30,000	32,400
Stocks.....	162,300	183,000

The weather being too cold and rainy in August, beets acquired little saccharine matter during the month. At the same time the stock as shown above was 21,000 tons below that of August 1, 1885. The general beet-root sugar crop of the Continent of Europe is, however, expected to yield for the current year 2,500,000 tons. The visible supply of sugar in Europe and America on August 20 was 1,009,714 tons, against 1,085,216 in 1885, and 907,711 in 1884. Under the circumstances, White No. 3 was not worth over 32 francs for August delivery, against 49.75 francs August, 1885, and 40.75 August, 1884.

Vintage prospects are fair in France, but in August grapes were maturing slowly, owing to the cool, damp weather and cold nights. As for the general yield, it is just possible that the crop will barely reach in size last year's. Stocks of wines were comparatively light, and prices well sustained, except in the South, where the vintage will be very large.

The silk trade was dull and monotonous in August, being between seasons; in spite of the flatness, prices of raw silk were on the whole firm, both in France and Italy.

Germany.

The condition of the iron trade in Rhenish Westphalia is said to be distressing, there being a steady overproduction, a dull trade and ruinously low prices, yet there is not harmony enough among makers to reduce the output by common agreement, under suitable penalties to be incurred by those who act in contravention of it. This reduction by common consent has been successfully carried out in Belgium, France and Austria. In Upper Silesia there is at least some export of pig-iron going on to Russia, yet the general situation there is not much better, and more blast furnaces will have to be blown out. Finished iron is selling very low and the outlook in both German iron districts is gloomy in the extreme.

Holland.

The *Nederlandsche Courant* in its monthly coffee review states that the continually improving statistical position of the staple, together with the good consumptive demand, inspire all those interested in it with growing confidence, causing the price to appreciate steadily.

ARRIVALS DURING THE FIRST SIX MONTHS.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	192,860	246,940	218,690	284,800	233,330	230,770
America.....	117,710	115,580	100,239	97,657	95,750	99,084
Totals.....	310,570	362,520	318,929	382,457	329,080	329,854

DELIVERIES.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	215,060	216,440	184,090	218,300	191,780	195,770
America.....	117,174	120,135	106,348	100,114	99,206	103,148
Totals.....	332,234	336,575	290,438	318,414	290,986	298,918

STOCK JULY 1.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	151,050	179,550	190,450	189,000	158,400	124,100
America.....	34,225	33,292	33,350	21,606	22,125	25,840
Totals.....	185,275	212,842	223,800	210,606	180,525	149,940

Add thereto Netherland Trading Company's unsold stock of 324,300 bags in 1886, 617,000 in 1885, and 549,100 in 1884.

AMERICAN MOVEMENT.

	1886.	1885.	1884.	1883.	1882.	1881.
Arrivals, 6 mos.....tons.	117,710	115,580	100,239	97,657	95,750	99,084
Consumption.....	116,925	120,042	106,260	93,321	94,365	92,120
Export.....	240	93	88	6,793	4,841	11,028
Total deliveries.....	117,174	120,135	106,348	100,114	99,206	103,148
Stock, July 1.....	34,225	33,292	33,350	21,606	22,125	25,840

Java.

Advices of August 20 state that the government coffee crop is estimated at 759,700 piculs. On July 1 the export duty was reduced from 3 guilders the 100 kilograms to 1 guilder, causing the export to be resumed in full from that date. For the United States purchases were being made at 40@43 guilders the picul. The Padang coffee crop estimate has been reduced from 80,000 piculs to less than 70,000.

Following are the exports of sugar from Java:

	1885-6.	1884-5.	1883-4.	America	1885-6.	1884-5.	1883-4.
July-April.....tons.	355,018	361,209	286,073	2,654	8,181	3,514	3,514
May.....	3,807	9,020	11,764	....	765	525	525
Total.....	358,825	370,229	297,837	2,654	8,946	4,039	4,039

Prior to the passage by the Dutch Chambers, during the last week in August, of the bill increasing the duty on foreign raw sugars and raising the allowance on Dutch colonial waste sugars, the *Nederlandsche Courant* remarked: "Referring to the application of the Java planters for assistance from the Dutch Government, the result may be that the tax for 1886, which the ninety-two mills working under contract with the government owe the Indian Treasury, will be remitted, and that the still existing export bounty of 9 cents per picul will be abolished. In the meantime there is no doubt that the Java planters, as well as some of the financial institutions connected with the island, are not in an enviable position, and the relief will certainly not be obtained by government interference, but only from sounder fiscal arrangements on the Continent of Europe, i. e., the abolition of the export bounties in beet-producing countries."

Mauritius.

Advices from Port Louis dated August 3 reported fine weather for harvesting the sugar crop, the quantity of which was satisfactory. The comparative sugar exports to July 5 were as under:

	1885-6.	1884-5.	1883-4.
To United Kingdom.....tons.	16,579	13,152	9,450
France.....	10	43	757
Australia.....	18,790	31,559	41,320
New Zealand.....	6,580	8,428	11,033
Cape of Good Hope.....	4,084	4,461	6,635
Bombay.....	50,384	54,258	36,038
Calcutta.....	3,410	742	....
United States of America.....	5,881	10,343	9,217
Other places.....	2,804	1,710	1,315
Totals.....	108,531	124,696	115,765

Philippine Islands.

The total sugar shipments from the three ports up to July 5 were as under:

	1886.	1885.	1884.
To Great Britain.....tons.	16,778	15,069	10,819
United States.....	92,601	66,729	40,177
Sundries.....	12,673	20,305	15,503
Totals.....	122,052	102,103	75,499

Russia.

Official figures just published show that Russia's exports decreased in value from 550,500,000 rubles in 1884 to 479,000,000 in 1885, and the imports from 486,330,000 to 379,000,000. Despite the higher duties, the revenue collected from customs was only 98,000,000 rubles last year, against 99,500,000 in 1884. In 1883 Russia exported 667,700,000 rubles' worth of products; the falling off since then compared with last year has been 110,000,000 rubles. Grain exports amounted to 46,000,000 chetwerts in 1875, whereas last year it did not exceed 23,000,000 chetwerts.

Spain.

The excitement in Catalonia about the new Anglo-Spanish treaty—which became operative on August 15—has subsided somewhat, the Catalans beginning to take a more philosophical view of it.

Vintage prospects could hardly be better in the Peninsula. The mildew, about which there had been such apprehension, has, it now appears, done little damage after all, the weather having been unfavorable to its development. With the exception of Andalusian ports Spain was almost bare of wines of better quality, while inferior quality was abundant and selling at almost any price in view of the large crop coming and the impossibility of exporting undesirable wines. The phylloxera has made its appearance in Catalonia; active steps had been taken to fight it vigorously.

An exhibition of products from the Philippine Islands is to come off next year in the Retiro at Madrid, where the Mining Exhibition was held, and

finally the "Museo Arqueológico" is to be installed there permanently. Much interest is felt in the exhibition, which is to open on April 1 next and remain open till September 1. Railroad companies are expected to reduce passenger fares so as to swell the number of visitors from all parts of Spain.

Instead of allowing tobacco to be grown in Spain under supervision of the fiscal authorities, as is done in Germany and elsewhere, the culture is prohibited, and, if clandestinely planted, the plants are torn from the ground. This happened in August last in the Yeste and Alcaraz districts, where 2,680,000 plants were thus destroyed.

At Tornella de Montgei the first ramie decorticating factory in Catalonia went into operation in August.

Sweden.

Between 300 and 400 Swedish ironworkers lately left Stockholm for Germany, having been engaged by emissaries from the German Government at wages far above the ordinary run of pay in Stockholm. The German Government is building several vessels at the Vulcan Shipbuilding Company, Stettin, and was desirous to secure 600 Swedish workmen, but the above number was all they could obtain.

It is expected that the committee which was formed by the Swedish Government some months ago to inquire into and report upon the present economical crisis, and suggest measures for alleviating it, will recommend the state to purchase all the private railways in Sweden, which represent a capital of some 250,000,000 kroner. Sweden, it may be remarked, has the largest mileage of railway in Europe in proportion to the number of its inhabitants, the total being 6,892 kilometres, of which 2,387 kilometres are already state property.

Wood oil is now made on a large scale in Sweden from the refuse of timber cuttings and forest clearings, and from stumps and roots. Although it cannot well be burned in common lamps, on account of the heavy proportions of carbon it contains, it furnishes a satisfactory light in lamps especially made for it, and in its natural state is the cheapest of all illuminating oils. Thirty factories produce about 40,000 litres of the oil daily. Turpentine, creosote, acetic acid, charcoal, coal-tar oils, and other useful substances are obtained from the same materials as is the wood oil.

West Indies.

CUBA.—Following are the figures relating to the sugar movement at Havana and Matanzas up to August 1, compared with the corresponding period of 1885:

	Boxes.	1886. Bags.	Hhds.
Weekly receipts.....	293	1,744	1,759
" clearances.....	985	46,209	1,637
" to Channel and U. K.....			
Total receipts, including stocks on January 1.....	62,137	1,673,797	57,557
" shipments to all ports.....	37,984	910,287	55,279
" Channel and U. K.....			
Stock.....	31,240	660,873	13,743

	Boxes.	1885. Bags.	Hhds.
Weekly receipts.....	1,399	6,988	1,447
" clearances.....	186	11,544	1,636
" to Channel and U. K.....			
Total receipts, including stocks on January 1.....	113,120	1,190,688	152,777
" shipments to all ports.....	61,010	735,171	125,787
" Channel and U. K.....	2,183	76,341	6,553
Stock.....	35,703	430,962	26,017

TRINIDAD.—Advices from Port of Spain, dated July 26, state that the uninterrupted heavy rains had caused the canes in the low-lying districts to suffer, and that more moderate weather was wanted. Sugar shipments up to date compared as under:

	Hhds.	Tierces.	Barrels and Bags.
1886.....	18,699	9,193	177,626
Of which to America.....	18,150	8,054	78,933
1885.....	37,177	9,126	189,943
1884.....	34,659	7,231	126,225

HAYTI.—A. Schmidt & Co., Port-au-Prince, July 20, state with reference to the new coffee crop that prospects are good in consequence of a sufficient rainfall in summer. Stocks of old coffee were rapidly being exhausted at \$6.20 and \$7 the 100 lbs. Cocoa was bringing \$9 and \$9.50 the 100 lbs. Logwood receipts were light, and the price had improved from \$5.50 to \$6 the 1,000 lbs.

ACCORDING to statistics recently published in a German journal on the railway enterprise of the world, the aggregate mileage at the end of 1884 was 290,750 miles. Europe claimed of this total 117,694 miles; Asia, 12,757; Africa, 4,075; America, 148,738, and Australia, 7,486 miles. Not less than 60 per cent. of the whole mileage of the world is in English-speaking countries. Australia has the largest amount of railway accommodation in proportion to population, and the United States and Canada come next. The cost of constructing the universal railway system is estimated at £4,800,000,000. The highest expenditure was in Great Britain, where it amounted to £41,168 per mile, as compared with £24,797 in Belgium, £24,928 in France, £21,041 in Germany (State railways), £20,885 in Austria, £16,459 in Russia and £12,650 in the United States.

Review of the Markets.

Reports for the Month ended September 1.

Butter.—The demand for choice to fancy stock has been fuller and holders are less inclined to push supplies. State pails are mostly at 23c. and Western creamery at 22c. In medium creamery stock there have been some sales on export account, with sales at 15@18c., and for an exceptionally fine parcel 19c. The market is very bare of cheap grades. We quote: Creamery, 11@23c.; State, 10@21½c.; Western, 6@15c.

Cheese.—The market has been dull, but values are stiffening and holders are insisting on fuller rates. We quote: State factory, fancy, 9@9½c.; choice, 8½c.; prime, 8½@8¾c.; good, 8½@8¾c.; medium, 7½@8¾c.; fair, 7½@7¾c.; night skims, 5½@7½c.; dead skims, 2@4c.; Ohio flats, fair to good, 5½@7¾c.; fine, 7½@8c.

Coffee.—Brazil coffees have been favored with an improved demand, the market has been in better tone and prices have been advanced. Sales of "afloats" have been made at 10½c. for No. 3, 9½@9.55c. for No. 6 and 9c. for No. 9. Spot invoices have been sold at 9½c. for fair and 9½c. for No. 6, and at the close holders were asking ¼c. more. The monthly Rio coffee statement of William Scott's Sons is as follows:

Stock in warehouses August 1, 1886.....	bags.	410,388
Received since.....		
At New York.....	bags.	162,431
Baltimore.....		24,462
New Orleans.....		25,318
		212,211

Total supply..... 622,599

Delivered from warehouses since—		
At New York.....	bags.	213,244
Baltimore.....		24,007
New Orleans.....		22,210
		259,551

Stock in warehouses September 1, 1886—		
At New York.....	bags.	282,881
Baltimore.....		56,809
New Orleans.....		23,358

Total stock..... 363,048

Afloat and loading for United States to July 31.....		52,414
Purchased for United States to August 31 (12,000 Santos).....		178,000

Total visible supply September 1, 1886..... 593,462

In mild coffees East India grades have ruled quiet and steady, and late transactions included 2,550 mats Padang at 17½c. Mocha has been quiet and easy, with standard marks selling at 18c., and more offering at the same price. West India grades have been in fair request, but buyers have been unwilling to pay any advance. We quote: Rio, ordinary cargoes, per pound, 9½c.; fair do., 10½@10¾c.; good do., 10¾c.; prime do., 11c. Santos, fair to good cargoes, 10½@10¾c.; Java, 18½@22½c.; Singapore, 12@14c.; Ceylon, 8@12c.; Maracaibo, 9@12½c.; La Guayra, 8½@11½c.; Jamaica, 7½@11½c.; San Domingo, 7½@7¾c.; Porto Rico, 10@12c.; Central America, 9@13c.; Mexican, 8½@11½c.; Angostura, 9@11½c.; Savanilla, 8½@13½c.; Mocha, 20@22c.

Cotton.—The demand for "spot" cotton is very light from both spinners and shippers and at the close 1-16c. concession failed to attract any special attention. Middlings closed quoted at 9 3-16@9¾c. Futures have been dull and 1 to 2 points lower, with buyers still inactive. Closing figures were: September, 9.09@9.10c.; October, 9.10@9.11c.; November, 9.12@9.13c.; December, 9.16@9.17c.; January, 9.25c.; February, 9.33@9.34c.; March, 9.41@9.42c.; April, 9.50@9.51c.; May, 9.58@9.59c.; June, 9.66@9.67c.; July, 9.74@9.75c.

Dry Goods.—The business for the past month in the dry-goods market has been satisfactory all round. The distribution by jobbers has developed a steadily increasing activity, and with supplementary demands for special lines the close has found stocks reduced and correspondingly broken. Manufacturers of wool have been fairly busy, the jobbing trade has been active and a large and healthy distribution is reported in all branches. Kentucky jeans have had sufficient activity to prevent stocks from accumulating; soft wool dress fabrics have reached a large aggregate business, though deliveries and stocks have become very much reduced; flannels have been in good demand; blankets have had a moderate trade, while in clothing woollens purchasers are pressing for more rapid delivery. Cotton goods have shown increased activity during the last half of the month, manufacturers have done better and jobbers have been favored with a marked improvement in business. Turkey-red damasks and table-cloths are sold out of sight. In drills the chief production is under the control of orders, stocks are purely nominal, the market is steady and prices are firmer than they have been for some months. Gingham have been quiet, for while the new demand has been of fair proportions, few goods of leading makes have been obtainable for prompt shipment. The production of Canton flannels is more largely under the control of orders than in any corresponding season and a steady demand has prevailed for duplicate assortments. The receipts of dress goods have been taken up steadily and stocks are nominal. Colored cottons have been in wide request for new and duplicate selections. Denims, tickings, stripes, checks and fancy styles have been in steady request, and in many instances the market closed at 1½@1½c. advance. Brown sheetings and shirtings have had a large new business, as well as a wide movement in the execution of orders from jobbers, exporters, converters and the manufacturing trade. Agents' stocks have been materially reduced and there are no large quantities in any quarter. Bleached sheetings and shirtings have been in steadily increasing demand, and stocks have been pretty well cleaned up, while there is a goodly quota of orders against arrivals. Printing cloth has been in moderate demand, the market being steady to firm at 3½c. for 6x64 cloths and 3c. for 56x60 cloths. Prints and printed fabrics have been in improved business, especially toward the latter end of the month. The imports of foreign

dry goods at this port for the closing week amount to \$2,857,789, showing a decrease of \$177,064 as compared with the previous week, and an increase of \$572,643 as compared with the corresponding week last year. The total of goods marked for the closing week has been \$2,846,301, or \$11,488 less than the imports. The total imports since January 1, 1886, have been \$78,076,645, against \$66,268,186 for the same time in 1885, or an increase of \$11,808,459.

Drugs and Chemicals.—There has been a fair business in the chemical market, made up almost entirely of calls for jobbing lots. Sales of 75 tons soda ash, \$1.32½@1.35; 325 casks bleaching powder, \$1.60@1.65; 40 drums caustic soda, \$2.47½@2.50; 50 tons sal soda, 87¢@90¢; acetic acid, 2¼@2½¢; oxalic acid, 6¼@6½¢; citric acid, 65¢@66¢; tartaric acid, 43¢@45¢ for crystals and 44¢@46¢ for powdered; acetate of lime, 1¼@1½¢ for brown; aloes, 6¼@7¢ for Cape and 12¢@12½¢ for powdered; alum, \$1.75@1.87½ for lump and \$1.87½@2 for ground; ammonia carbonate, 9¢ for English and 9¼@9½¢ for D. and O.; assafetida, 10¢@11¢; arnica flowers, 7¢@8¢; albumen, 17¢@17½¢ for foreign blood; arsenic, 2½@2½¢; balsam copaiba, 30¢@35¢; balsam tolu, 32¢@35¢; balsam Peru, \$1.10@1.20; bichromate of potash, 9½@10½¢ for Scotch; borax, 7¢ for refined in bbls.; blue vitriol, 4¼@4½¢; brimstone, \$1.25@2.15 for seconds; buchu leaves, 6¼@10¢ for shorts and 26¢@27¢ for longs; cantharides, \$1.00@2 for Russian; camphor, refined, 22½@24¢; castor-oil, 17¢@18¢ in bbls. and cases; cardamoms, 60¢@75¢ for Aleppy and 50¢@52¢ for Malabar; cassia buds, 10½@11¢; camomile flowers, 12¢@20¢ for old and 30¢@35¢ for new German; cutch, 6¼@6½¢; chloride of potash, 16½@16½¢ for crystal and 16½¢ for powdered; cochineal, 30¢@31¢ for Tenerife silver; cream tartar, 34½@35¢ for crystals and 35¢@36¢ for powdered; gambier, 4¼@5½¢; ginger, 13¢@14¢ for Jamaica bleached and 9¢@10¢ for unbleached; glycerine, quoted at 15¢@15½¢; Guarana, \$1.37½; iodide of potash, \$2.65@2.73; ipecacuanha, 87½@90¢, and powdered, 90¢@91¢; licorice paste, 27¢@28¢ for P. & S., and 30¢@32¢ for Corigliano; manna, 55¢@60¢ for small flake and 95¢ for large flake; morphine, \$1.85@2.40 for domestic; opium, \$2.75@2.90 for new, duty paid; oil cloves, \$1.55; oil cassia, 60¢@65¢; oil anise, \$1.55; oil lemon, \$1.75@2.50, as to brand; oil sassafras, 34¢@37¢; oil wintergreen, \$1.85; oil bergamot, \$2@2.75; oil peppermint, \$3@3.50 in tin and \$3.50@3.60 in glass; prussiate of potash, 20½¢ for American yellow; quicksilver, 46½@47¢; quinine, 40¢@50¢ for German and 58¢@65¢ for American; roots, 4¼@4½¢ for gentian; Seneca root, 43¢@45¢, and Colombo root, 9¢@12¢; ginseng, \$1.80@2.30; saarsaparilla, 2¢@10½¢ for Mexican; seeds, 4¼@5¢ for Trieste brown mustard and 5¼@6¢ for California yellow; senna, 30¢ for Alexandria; shellac, for D. C. and L. B. over and S. under, 17½@18¢ per lb.; V. S. O., 14¢@14½¢ per lb.; I in diamond, 13½¢ per lb.; sticklac, —¢ per lb.; sugar of lead, 6¼@7¢ for brown and 12¢ for white; Tonka beans \$1.60@1.65 for Angostura.

Freights.—The movement on berth is generally very moderate and rates are somewhat irregular. Tonnage for charter, while not active, is firmly held. There has been some call for steam tonnage, mostly for Spain and Italy. Vessels for petroleum are in less request, but are held steadily, while steam tonnage for cotton is having more attention, chiefly for forward loading at the Southern ports of outlet.

Quotations from New York to United Kingdom and Continental ports:

	Grain.	Oil & ke.	Flour.	Sugar.	Provis'ns	Cheese.	Beef.	Pork.	Cotton.
Liverpool (steam)	2½	5	11.3	11.3	10.0@15	12.6-20	20@2.6	1.6@2	7-64
London (steam)	20@3½	9.6	11.3	11.3	20.0@22.6	25	4.6	3.3	..
Glasgow (steam)	2½	8.9	11.3	11.3	13.9@20	25	3.6	2.3	..
Hristol (steam)	3½	10	12.6	12-15	17.6@20	30	4	3	..
Leith (steam)	3½	11.3	13.9	12-15	17.6@20	25	4	3	..
Hull (steam)	3½	12.6	15	15	17.6@20	25	4	3	..
Newcastle (steam)	3½	12.6	15	13.9	17.6@20	25	4	3	..
Antwerp (steam)	3	12.6	15	15	17.6@20	..	4	3	½d.
Hamburg (steam)	45@50	12.6	15	16.3	75pf.	..	75pf.	75pf.	5-32d.
Bremen (steam)	60	12.6	15	17.6	90pf.	..	90c.	90c.	11-64d
Copenhagen (s'm)	1.6	..	..	20	..	..	4	2.9	..
Marseilles (s'm)	3	..	..	30	30.0@32.6	..	32.6	32.6	..

Cork for orders, sail, 3s. 9d.; steam, 3s. Direct port, United Kingdom, 3d.@6d. less.

OIL QUOTATIONS.

	Refined Petroleum.	Naphtha.	Cases.
Cork and United Kingdom	2.7½@2.10½	2.10½@3.1½	Levant.....
Direct port, United Kingdom	2.3 @2.10½	2.6 @3	Adriatic.....
Direct Continent.....	2.3 @2.10½	2.6 @3	Mediterranean. 1.4@1.5
Baltic.....	.. @ ..	.. @ ..	..

Fruits.—Foreign Dried—Raisins have only had light attention. Turkey prunes are barely steady, while citron is strong at an advance. We quote: Valencia raisins, 7¢@7½¢; loose muscatel, \$1.80@1.85; London layers, \$2.10@2.15; Sultana, 7½¢; Ondara layers, 9¼@10¢. Almonds—Princess, paper shelled, 24¢; Sicily shelled, 22¢; Jordan, 38¢; Tarragona, 14½¢; Ivica, 14¢; Languedoc, 14½¢; French sardines, 11¢@11½¢ for quarter boxes and 16¢@18¢ for half boxes. Citron, 18½@18½¢. Currants, 5½@5½¢. Figs, 9¢@14¢. Turkey prunes, 3¢@3½¢; French prunes, 7¢@14¢. Grenoble walnuts, 14½@14½¢; French do., 6¢@7¢; Naples do., 14½¢. Sicily filberts, 7½@7½¢. Dates, 5½@6½¢ for Persian in boxes, and fards, 7¢@7½¢. Brazil nuts, 6½¢. Domestic Dried—The market has ruled quiet, with small sales at unchanged prices. We quote: Apples—Fancy evaporated, 9¢; choice, 8½¢; do. prime, 8¢; fancy North Carolina sliced, 4¢; choice do., 2½@3¢; choice Tennessee quarters, 1½@2¢; State quarters, 2½@3¢; Southern sliced, prime, 1½@1½¢; do. common, —¢. Peaches—Peeled North Carolina, choice, 11¢; fancy, 12¢@12½¢; Georgia, choice, 10¢; do. prime, 8¢@9¢; unpeeled halves, 3¢@3½¢; unpeeled quarters at 2½@2½¢; Delaware evaporated, peeled, —¢. Choice pitted cherries, 10¢@10½¢. Evaporated raspberries, 15¢; sun-dried do., 13¢@14¢. Blackberries—Prime, 8¢. Whortleberries, 6¢. Plums, 5¢; do. California, evaporated, —¢.

Flour and Meal.—The flour market has ruled dull and heavy and bulk of sales have been under previous quotations. Closing figures were: No grade, \$1.90

@2.10; fine, \$2.10@2.60; supers, \$2.50@2.85; extras No. 2, \$2.90@3.35; extras No. 1, \$3.25@4.25; clear bakers', \$3.25@4; straight bakers', \$4@4.60; patents, \$4.50@5.10; city extras (European) in 140-lb. sacks, \$3@3.75; city West Indies, \$4.50; city patent, \$4.50@5.10. Southern flour has been dull and the market has been in favor of the buyer. We quote: Fine, \$2.50@2.75; supers, \$2.65@2.85; extras, \$3.25@4.25; Richmond first, \$4.87½@5; Richmond second, \$4.37½@4.50; and patents, \$4.50@5.10. Rye flour is dull. We quote: Fine at \$2.25@2.40 and superfine at \$3.25@3.40. Corn meal is steady at \$2.65@2.99 for Western, \$3.40@3.75 for Western granulated, and \$2.85@2.95 for Brandywine.

Grain.—Spot wheat closed ¼¢ lower, with moderate offerings, and even from shippers there was a very slack demand. Closing sales were of 260,000 bushels, including No. 2 red, afloat, at 87½@87½¢; No. 2 store, f. o. b., at 87½@87½¢; No. 2 red, in elevator, at 86½¢; do., steamer, at 86½¢; No. 3 red, elevator, at 85½¢; red ungraded, at 81¢@90¢; No. 1 Northern, at 88½¢; No. 1 hard, at 91¢; No. 2 Chicago, at 86¢. Options closed ¼¢@½¢ "off," although there was a fair degree of activity. Closing sales were: September, 86½@87 7-16¢; October, 88½@88½¢; November, 89½@90½¢; December, 91½@91½¢; January, 92½@96½¢. Rye has been in light demand and prices have been unsettled. We quote: State, at 57¢@58¢; Western, afloat, at 54¢@55¢; Canada, afloat, at 56¢@57¢. "Spot" corn has been in moderate demand, closing steady. Lite sales were as follows: New York No. 2, in elevator, at 50½@50½¢; do. afloat, at 51½@52¢; ungraded mixed, in lots, at 50¢@52¢; No. 2 White, at 52½¢, and white Southern, at 56¢. Closing sales in the options were as follows: September, at 50½@50½¢; October, at 51½@52¢; November, at 52½@52½¢; May, at 56¢. Oats on spot closed a trifle easier and the demand has been fair, some share of the trading being on export account. Closing sales were: No. 1 White, at 36½¢; No. 2 White, at 34½¢; No. 3 White, at 33½¢; No. 2 elevator, at 31½@32¢; do. delivered, at 33¢@33½¢; White Western, ungraded, at 34¢@41¢; Western mixed, ungraded, at 29¢@34¢; White State, ungraded, at 34½@37½¢. Closing sales in options were: September, at 31½@32¢; October, at 32½@33¢; November, at 33½@34.

Leather.—Exporters have been only moderate buyers in the leather market, but manufacturers have maintained a very steady demand. Union tanned is selling freely at unchanged prices. Hemlock sole has been in moderate request, and with small available supplies the market has ruled firm. We quote: Hemlock Sole—Non-acid Buenos Ayres light, first selection, 21¢@22¢; middle do., 22¢@23½¢; heavy, do., 22¢@22½¢; light seconds, 19¢@20¢; middle do., 19½@20½¢; heavy do., 20¢; damaged, all weights, 17¢@18¢; non-acid California light, first selection, 21¢@21½¢; middle do., 21½@22¢; heavy do., 21½@22¢; light seconds, 19¢; middle do., 19¢@19½¢; heavy do., 19¢; non-acid common hides—light, first selection, 20¢; middle do., 20½@21½¢; heavy do., 20¢@21½¢; light seconds, 18¢@19¢; middle do., 18¢@19¢; heavy do., 18¢@18½¢; damaged, all weights, 16¢@17¢; rejects, 12¢@13¢; acid hides of all kinds—light, first selection, 20¢; middle do., 20½@23¢; heavy do., 21¢@25¢; light seconds, 18¢@18½¢; middle do., 18¢@19¢; heavy do., 18½@20½¢; damaged, all weights, 15½@16½¢. Union Tanned—Slaughter—Light backs, 31¢@31½¢; middlebacks, 30½@31½¢; middle backs, heavy, 30¢@31¢; seconds, backs, 28½@29½¢; light crop, 28¢@29½¢; middle crop, 28½¢; bellies, 19¢@15½¢. Calcutta Buffalo—Light, 18¢@19¢; middle, 17¢@18½¢; damaged 15¢@17¢; poor damaged, 12¢@13¢.

Lumber.—Spruce has been in good demand, and the market closed firm. Other grades have been in moderate request only. Quotations are: Spruce, random cargo, \$13@15.50 per M. feet; do. special cargo, \$15@17. White pine, South American shippers, per M. feet, \$28@29; do. West India shippers, \$16@18; do. box boards, \$14@15. Yellow pine, random cargo, \$18@19.50; do. special cargo, \$14.50@21; do. green flooring boards, \$17@18; do. dry flooring boards, \$21@22; do. siding, \$21@23; do. cargoes f. o. b. Atlantic ports, rough, \$13@15; do. cargoes f. o. b. Atlantic ports, dressed, \$18@20; do. cargoes, f. o. b. Gulf ports, rough, \$12@14; do. cargoes f. o. b. Gulf ports, dressed, \$19@21. Lath is quoted at \$2@2.20.

Metals.—Copper—With consumers' wants supplied under contracts and export bids few, the market is quiet. Lake is quoted at 10½¢, Arizona, at 9½¢ and Baltimore, 9½¢. Pig-Iron—Much more activity is shown, and the largest company reports production for balance of year sold and 10,000 tons refused. Contracts have been made at \$18 for No. 1 X, foundry, and \$17 for No. 2 X, foundry. Good brands of forge remain at \$16. Scotch pig sells along fairly in moderate quantities and an occasional good-sized lot is taken. Prices are quite firm, but showing no quotable change. We quote: \$17.75@18 for Eglinton, \$18.50@19 for Dalmellington, \$18 for Ayreson, \$18.50@18.75 for Glengarnock, \$19@19.75 for Gartsherrie, \$19.50@19.75 for Summerlee, \$19.50 for Langloan and \$19.75@20 for Coltness. Old rails—The market is very firm. Tees cannot be had less than \$21.50 and are generally held at \$22, with double heads 25¢@50¢ higher. Sales have been made of tees at \$18 at Fernandina, Fla., at \$21 at a Sound port and short length, double heads at \$20.50, to arrive. Scrap-Iron—Foreign wrought is offered to arrive at \$19, ex-vessel, but without buyers. Car-wheels are firm at \$16. Steel Rails—Large contracts have been closed, some at \$34, which is bottom rate. As domestic rails for early delivery are scarce there is fair demand for foreign, with English rails quoted at \$36.70 in New York. Lead—Common brands of pig-lead are quoted at 4½¢ and refined at 4.60¢ and while holders are disinclined to force the market, buyers are equally disinclined to operate. Pig-Tin—The market is firm, and while consumers are buying cautiously, the aggregate reaches a very fair total. Closing prices were: Straits, 21.8¢@21.85¢ cash in five to ten ton lots, and 22¢ cash; 22.10¢ thirty days, for ordinary store parcels. Tin Plate—The unsettled condition of the market abroad seems to cause a marked timidity among buyers here, and business is therefore of moderate proportions, with prices unsettled. B. B. cokes are a shade lower on the spot, but store prices for other plates show no change. We quote spot lots as follows: I. C. charcoal, ½ cross assortment, \$4.65 for Allaway and \$5.15@5.20 for Melyn grade; for each additional X add \$1 and \$1.50 respectively. I. C. coke, \$4.25 for B. V. grade; \$4.35 for J. B. grade. Charcoal terne, \$4.17½ for Allaway grade; \$4.22½ for Dean grade, 14x20, and \$8.30@8.45 respectively for do. 20x28.

Molasses.—There has been very little demand for foreign grades. Prices closed steady on the basis of 17¢ for 50 test. New Orleans has been in light demand, but

prices closed steady. We quote: Porto Rico, 23@31c.; Barbadoes, 23@25c.; Demerara, 15@17c.; Martinique, 15@17c.; New Orleans, 38c. for best, 36c. for choice, 32@34c. for prime, and low grades, 15@20c. Sugar-house molasses, 10½c. for ordinary in hhd., 12½c. for extra heavy, and 11c. in bbls. Sugar, 16@17c. for low, 20@22c. for common, 22@23c. for fair, and 25c. for best.

Naval Stores.—The spirit of the turpentine market has been quiet and barely steady, merchantable order being quoted at 34½c. Rosins are generally quiet and unchanged. We quote: Strained, \$1; good strained, \$1.05; No. 2 (E), \$1.20; No. 2 (F), \$1.35; No. 1 (G), \$1.45; No. 1 (H), \$1.60; good No. 1 (I), \$1.80; low pale (K), \$2.30; pale (M), \$2.70; extra pale (N), \$3.10; window glass (W), \$3.25. Tar quoted at \$1.90@2.40 for Wilmington; pitch quoted at \$1.50@1.60.

Paper.—The paper market generally is quiet, although there is about the usual amount of business being transacted. As a rule, the mills are comfortably provided with orders, and production, especially of good grades, is well under contract. Writings are in fair movement, and sales are at steady prices. Book papers are being taken in fair quantities, and with perhaps a slight improvement in the demand; prices are steadily held. Strawboards are showing considerable activity, and combination prices are still fully maintained. Straw wrappings are quiet and unchanged. We quote: Fine flat caps, 13@15c.; superfine, 16@18c.; record and ledger, 18@22c.; supersized and calendered book, 7½@10½c.; do. do., extra machine finish, 7@7½c.; do. do., low grade, 6½@7½c.; news, No. 1, 5@5½c.; do., rag and wood, 4½@5½c.; do., straw, 5½@5½c.; manillas, No. 1, light weight, 7½@8½c.; do., heavy weight, 6½@7c.; No. 2 manillas, 5@6c.; No. 3 do., 2½@3c.; straw wrapping, heavy weight, 1½@2c.; do. do., light weight, 2½@2½c.

Petroleum.—"Certificates" closed at 61½@61¾c. with a dull market. Barreled refined oil closed steady at 65c. for 70° Abel test, with fair demands. Case oil closed at 8½c. for plain brands, the market being very steady. Home trade lots of barreled oil closed quoted at 7½@7¾c. for 110° test standard white; 7½@8½c. for 120° test, do.; 8½@9½c. for 130° test, do.; 8½@9c. for State test, do., and 9½@9¾c. for 150° test water white. Crude in barrels was quoted at 5½c. for Bradford and 6½c. for Parker. Prime city naphtha closed at 8½c.

EXPORTS OF REFINED, CRUDE AND NAPHTHA, FROM ALL PORTS, JANUARY 1 TO AUGUST 31.

	1886.	1885.
From Boston.....gals.	3,579,572	6,557,371
Philadelphia.....	97,188,312	94,163,469
Baltimore.....	11,759,051	7,693,890
Perth Amboy.....	3,394,236	.....
Totals.....gals.	115,919,171	108,414,730
From New York.....	253,440,262	239,805,368
Total exports from United States.....	369,359,433	348,220,098

Provisions.—Pork—There has been stronger trading, with an advance of 25c. per barrel. Quotations are: \$10.50@10.75 for old, and \$11.25@11.50 for new mess; \$13@14 for family mess, \$13.75@15 for clear back, and \$9.75@10.25 for extra prime. Dressed Hogs—The market closed lower and irregular. We quote: Bacon averages at 6@6½c.; 180-lbs. average at 6½c.; 160 lbs. average at 6½@6¾c., and pigs at 6½@6¾c. Cut Meats—There has been a moderate demand and prices have ruled steady. Sales have included 1,500 pickled hams at 11½c., and 50,000 lbs. green hams at the West on private terms. Pickled bellies, 12-lbs. average, are quoted at 6½c., city pickled shoulders at 6½c.; smoked shoulders at 7½c.; pickled hams at 11@11½c., and smoked hams at 12@12½c. Middles—There has been a moderate export inquiry, but otherwise the market is quiet. Short clear, December delivery, is quoted in Chicago at 6½c. Beef moves in small lots at unchanged prices, city extra India mess being quoted at \$11.50@13 in tierces; extra mess, in barrels, at \$8, packet at \$8.50 for barrels, and plate at \$8.50. Beef hams have been in light business, and are quoted at \$21 bid and \$21.50 asked, at Chicago, and \$23 at New York. Lard—Spot lard is not in free offering, and closed at 7.40c. bid. September holds its own, October has sold up about seven points, while November is a little lower. Late option sales were: September, at 7.41@7.42c.; October, 7.03@7.08c., and November, 6.86@6.89c. There have been sales of Western steam for prompt delivery at 7.40@7.42c.; city steam closed ten points higher, with sales at 7.10. Refined is quiet and is quoted at 7.60c. for Continental and 7.85c. for South American.

Staroh.—The market closed quiet, potato being quoted at 3½@3¾c. and corn at 2½c.

Stearine.—The market for lard stearine is firm, with sales at 8½c. City pressers quote 8½c. bid, with 8½c. asked. Oleomargarine stearine has been in light demand, but the market closed firm, with sales of city at 7¾c. and at the West 7c., f. o. b. Chicago, with freight at 30c. coming East to refiner.

Sugar.—Raw—The market shows but little demand, and while prices have undergone no change the advantage lies with the buyer. Late sales have included 650 hhd. Porto Rico, 80½ test, at 4 11-16c.; 106 hhd. St. Jago molasses, 80 test, at 4 13-16c.; 514 hhd. Muscovado, 85 test, at 4 5-16c.; 376 bags Trinidad centrifugal, 95½ test, at 5 3-16c.; 135 bags molasses, 90 test, at 4½c.; 1,840 bags do., 84.8 test, at 4½c.; 600 bags and 150 tcs. concrete at 4½c. Fair refining Muscovado quoted at 4½c.; centrifugal, 96 test, at 5½c.; do., c. and f., at 2½c. Refined—The movement has been very moderate, and prices are without material change. We quote for export: Cut loaf, at \$3.71; crushed, at \$3.71; powdered, at \$3.58@3.83; granulated, at \$3.33.

Teas.—The market generally is quiet. There is a fair trade demand, but no special activity in any grade. Japans are steady, Formosa and Amoy Oolong's dull and Pingsuey's fairly salable. The closing prices as established at the latest auction sale were as follows: Moyune—hyson at 13@19c.; young hyson at 10½@40½c.; imperial at 9@25c.; gunpowder at 18@41c. Pingsuey—young hyson at 14@15c.; imperial at 22@23c.; gunpowder at 15@27½c. Japan—pan-fired at 18@32c.; basket-fired at 22@27c.; sun-dried at 12@21c.; siftings at 6½c.; congou at 16@35c. Oolong—Formosa, 22½@23c.; Amoy at 14@15½c.; India at 7@24½c.

Tobacco.—The lower grades of Kentucky are quiet and easy, while heavy grades have ruled steady under improved demand. We quote: Common lugs, 3½

@5c.; good, 4½@6c.; common leaf, 5½@7½c.; medium, 7@9½c.; good, 9@11c.; fine, 11@13c.; selected, 14@16c. Seed leaf has been in good demand; sales for August amount to 12,000 cases, of which 1,200 cases were for export and 11,000 cases for home trade. We note sales since our last of Pennsylvania, crop 1882-3, 10½@12c.; State Havana, crop 1884, 10@11c.; crop 1885, 13@17c.; Wisconsin Havana, crop 1885, 9@10c.; Ohio, crop 1885, 6@6½c.; Ohio, Zimmer's Spanish, crop 1885, 15c.; Pennsylvania Havana, crop 1885, on private terms. Other transactions comprise: Havana, 60c. @ \$1.05, and Sumatra, \$1.20@1.40.

STOCK OF SPANISH TOBACCO.

	Havana.	Cuba.	Cienfuegos.	Yara.
Stock August 2, 1886.....bales.	44,772	100	.....	185
Received since.....	4,517	.....	.....	216
Totals.....bales.	49,289	100	.....	401
Delivered since.....	5,678	.....	.....	100
Stock September 1, 1886.....bales.	43,611	100	.....	301

Wool.—With buyers waiting for concessions, and holders as patiently waiting for buyers to come up to their ideas, the wool market is quiet and very little business has been transacted. Late sales include: Oregon, 24c.; medium, unwashed, 30c.; Montana, 30c.; X and XX Ohio, 34@36c.; spring Texas, washed colts', scoured Texas, unwashed sorts and fleece, on private terms.

General Notes.

WHEN the Texas people get ready to build a town they do it in a hurry. Ballinger, a new town in Runnels County, is less than one month old, but it has 2,000 inhabitants and is still growing.

AT the Cape Rosier mine, Castine, Me., an almost solid bed of zinc was accidentally discovered by a workman sticking his pick into the ground at the edge of a drift which had been run in some eighty feet.

THE heaviest wood known among the four hundred species of trees found in this country is said to be the black ironwood of Southern Florida, which is thirty per cent. heavier than water. Sixteen of the species, it is stated, are so heavy that their perfectly dry wood will sink in water.

THE manufacture of wine from oranges is developing into a very extensive industry in Florida. Wine made from this fruit is said to have formed a large proportion of the "sherry" of commerce since the troubles caused by the phylloxera in France and other foreign wine-producing countries.

THREAD has recently been made from the bolls of milkweed which is said to have had the consistency and tenacity of flax or linen thread. The fibre is long, easily carded, and can be adapted to spinning on an ordinary flax spinner. Easily grown, the plant, hitherto a worthless weed, may prove a rival to the cotton of the South.

THE steamship Bulgarian, of the Leyland line, which lately arrived at Boston, gave, on the passage over, the test of practical operation to a mechanical process for the generation of steam at a much reduced consumption of fuel, and the attainment of the regular rate of speed per hour with the use of but about half the usual number of cylinders. The results during the trip out are considered very satisfactory. The steamer made use of only two of her complement of four cylinders, and was able to economize largely in fuel.

A PROCESS for the manufacture of ornamental clapboards lately patented consists, first, in producing on opposite parallel surfaces of a bolt or block a new configuration, such as a series of elevations and depressions extending transversely to the grain of the block; second, dividing the block in a longitudinal direction and along a plane at right angles to the plane of the parallel surfaces; and, third, dividing each of the separate slabs or pieces so produced longitudinally and along a plane at an acute angle to the parallel surfaces.

ROOFING tiles are being manufactured of wood pulp, and by the use of different colored sands a variety of tints are imparted to the tiles, rendering them capable of producing pleasing effects in ornamentation. It is claimed that their lightness obviates the necessity of heavy framing to support the roof, while their toughness protects them against blows, footsteps or the action of frost. Pulp tiles are more elastic than wood, and therefore lie closer together, and nails penetrate them more easily and bind them more closely to their beds than is the case with shingles.

THE statement that bicycles were to be substituted for cavalry horses in some military operations was at first not unnaturally treated as a joke by most people. Yet in the recent manoeuvres of the Aus-

trian army, scouts mounted on bicycles and tricycles outdid cavalry in endurance, and now the cycle is formally adopted in the Austrian military establishment. Another contrivance now in full military use is the balloon, which is adopted in nearly all European armies, while in Germany the aeronautic corps is combined with the railway brigade. Pigeons, too, have become parts of the military force in Germany and France, and to a less extent in Russia, Italy, Spain and Portugal. In the two first-named countries private homing clubs train birds to supplement the military lofts, and it is obvious that pigeon posts may be very useful where communication by telegraph or signal is interrupted. Finally, according to the *Hanoverian Courier*, dogs are kept in the yards of the barracks at Goslar to be trained for military purposes. The commander of the Fourth Army Corps has ordered similar experiments in other garrison towns; and when sufficiently drilled and set up, these four-legged recruits are expected to accompany sentries on their beats and possibly to perform a service analogous to that of the geese whose cackling saved Rome.

THE *Liverpool Journal of Commerce* notices a new tea chest which has been introduced in the shape of a steel box, made by machinery. The inventor, it is said, claims for his new package that the first cost is about one-fourth less than that of the present chest with lead lining. It occupies a smaller space in the hold of the ship, and consequently costs the importer less freight. Likewise, being little more than half the weight of an ordinary chest, the carriage from London to the country grocer will, of course, be considerably lower (perhaps 15 per cent.), which, in these days of keen competition and heavy transit charges, is a point well worthy of consideration. It is impervious to moisture, and may be placed in a pool of water without the slightest damage to the contents. It can be very quickly opened by removing four screws in the lid, and, as it does not require to be lined in the inside, as an ordinary chest is, with lead, the danger of the contents losing part of their fragrance by getting out between the lead and the outer wooden case is obviated. For purposes of sampling it is therefore infinitely superior to the old lead-lined chests, as its packages can be opened and reclosed without damaging the box.

THE cost of the Industrial National Exhibition which it is proposed to hold at Berlin in 1888 is estimated to be 8,000,000 marks. Of this sum it is calculated that 3,500,000 marks will be covered by receipts, while the city of Berlin has resolved to contribute 2,000,000 marks, and it is not improbable that the remainder will be given by the Imperial Government. The Federal Council at least has been asked by the Chancellor to take an application for this subsidy into its favorable consideration. An analysis of national opinion on the subject of the proposed exhibition shows that the idea is decidedly favored by the smaller class of producers (*Mittel- und Kleinindustrie*), while the great bulk of the bigger manufacturers (*Grossindustriellen*) are as decidedly against it.

THE newly-discovered gold property, lying within Cabarrus County, N. C., near the Rowan border-line, is to be developed. The property has been explored with more ease and even richer results have been obtained than was at first reported. They have determined to begin at once to prove the property in depth, as the surface indications all the way across the property are perfectly satisfactory. For the purpose indicated, a shaft will be sunk on the main vein, and work is to be commenced at once. Some of the ore taken within a few feet of the surface is reported to be worth as much as one dollar per pound. This is by actual test and proves the property to be one of the richest deposits recently found in the South.—*Salisbury (N. C.) Watchman*.

AN improved grate for burning soft coal consists of an arched floor or grate for furnaces, made of brick or other refractory substances perforated with vents, and having located upon it a series of conical caps or coverings, for the purpose of dividing the mass of fuel on the hearth into small bodies, and perforated with vent-holes in a horizontal direction, each cap having a communication with the ash-pit to permit the passage of atmospheric air, gas, or vapor from the pit into the interior of the cap, to be distributed into the surrounding mass of fuel through the vents in the side of the conical cap.

EXPERIMENTS are to be made with sponge-raising in the waters of the Long Island Sound. It is known that several varieties of sponge are growing along the coast of Connecticut, where they are frequently found by men digging for clams. Young sponges have been trans-

planted from Florida waters to the long reef of submerged rocks off Stratford Point, in the Sound, where they thrive and have rapidly grown to marketable sizes. The quality is not of the finest, but still good enough to make the cultivation pay. The coast of Connecticut being stony for many miles, it is thought that a new profitable industry will spring up from these experiments.

Catalogues and Price-Lists.

TO READERS.

THE Catalogues and Price-Lists herewith noticed are valuable for reference. In sending for such lists our readers should mention the date of issue and the page number of THE MAIL in which they are noted.

JANESVILLE HAY-TOOL COMPANY, Janesville, Wis., U. S. A.—An illustrated descriptive catalogue of hay-carriers, stacking machinery, hay-forks, &c.

WATERTOWN STEAM-ENGINE COMPANY, Watertown, N. Y., U. S. A.—Illustrated and descriptive catalogue of automatic cut-off engines.

ONTARIO CANOE COMPANY, Peterborough, Ontario, Canada.—An illustrated and descriptive price-list and catalogue of pleasure, fishing and hunting canoes and camping outfits.

PARIS MANUFACTURING COMPANY, Paris, Me., U. S. A.—Illustrated price-list and catalogue of children's sleds, boys' carts, wagons and wheelbarrows, ladies' folding work-tables, step-ladders, laundry-benches, &c.

PORTSMOUTH COMPANY, Boston, Mass., U. S. A.—Illustrated catalogue of wrenches, miscellaneous tools and builders' hardware.

WILLIAM T. WOOD & CO., Boston, Mass., U. S. A.—Illustrated descriptive catalogue and price-list of ice-tools of every description.

JOHN CAMPBELL, Manchester, N. H., U. S. A.—Illustrated circular and price-list of stable furniture and other hardware specialties.

RHODE ISLAND HORSE-SHOE COMPANY, Providence, R. I., U. S. A.—Illustrated and descriptive catalogue of patent machine-hammered horse and mule shoes.

GEORGE P. CLARK, Windsor Locks, Conn., U. S. A.—Illustrated catalogue and price-list of mill and warehouse machinery, trucks for factories, &c.

Business Notices.

THE firm of William Sellers & Co., engineers and manufacturers of improved machine tools for working iron and steel, shafting hangers, pulleys, &c., for transmitting power, and injectors for all classes of boilers, has been formed into a corporation. The style of the company is William Sellers & Co., incorporated, and its business address is as before, Philadelphia, Pa., U. S. A.

THE York Manufacturing Company, York, Pa., U. S. A., has acquired the sole ownership of the patents under which the Jarman ice machine has been manufactured, and will hereafter control the machine, the name of which has been changed to the York ice machine. The recognized merits of this refrigerating apparatus and excellent construction of the machine will be maintained under the new name.

CINCINNATI is having quite a boom in her manufacturing interests. The Thirteenth Industrial Exhibition has just been opened there, and the display of machinery and goods of that class is simply immense. The wood-working machinery department is well represented. The Egan Company, of Cincinnati, has the largest and finest display, and is said to have fairly outdone itself by putting in at least twelve entirely new machines which have never been seen in this part of the country before. These machines are all new in conception and design and are finished in extra fine style for exposition purposes. They include special machines for both furniture and planing-mill work.

LA compañía fabril, the Elyria Shear Company, de Elyria, Ohio, E. U. de A., fabrica tijeras cuyas quijadas son ó de acero sólido ó calzadas con acero aseverándose que son de calidad superior, bien acabadas y que cortan bien. Se usa para su fabricación solo el mejor acero y como quiera que no se emplea en ella sino la mano de obra de artesanos experimentados se garantiza cada par. Las quijadas de acero "Standard" se componen de un pedazo sólido de acero, forjado á un mango de hierro maleable por medio de un nuevo procedimiento de patente. Los compradores se servirán pedir las de la marca, "Elyria Shear Company." Se propone la compañía no solo mantener el alto rango de excelencia que se han granjeado sus manufacturas é introducir todas los perfeccionamientos de que puedan ser susceptibles aun, sino invitan á todos los negociantes en el ramo á que las ensayen. Se envasan todas las tijeras de esa marca en cajas de un acabado primoroso, media docena en cada una constituyendo dos de ellas un bulto.

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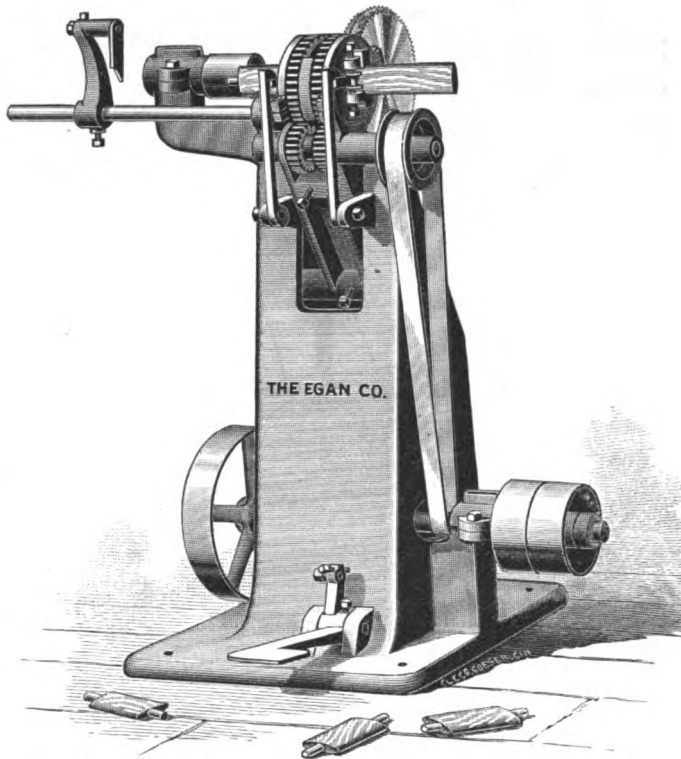
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Engineering and Machinery.

New Blind-Slat Tenoner.

ONE of the handiest little machines of the age is shown in the accompanying engraving. It is a blind-slat tenoning machine, and is from the works of the Egan Company, which has built it from entirely novel designs and patterns.

The frame is a pedestal, well designed and cored out, making it very stiff and durable; it is cut out on one side, so no dust or chips may lodge in it. The patent adjustable jaws can be instantly adjusted on both sides with one screw having a right and a left hand thread, by which means the jaws can be set much quicker and much more accurately than by other methods now in use. The treadle is convenient to the operator, and by slightly pressing with the foot brings the head, with its slat, forward. It revolves once and strikes the stop, and makes a complete blind-slat tenon on two ends with one revolution. Any length of slat can be cut on this machine, from an inch up, and two ends of the slat at the same time, making two full and complete tenons. The gauge also will admit of any length, and the stops can be instantly changed so as to gauge it accurately. A new feature on this machine is that when the treadle is released from the foot the feed-belt is loose, and when the foot is on the treadle the feed-belt is tight. This machine is specially offered for planing mills, car shops, &c., wanting first-class tenons on blind-slats.



NEW BLIND-SLAT TENON MACHINE.

Lathe-Centre Grinder.

A LATHE-CENTRE grinder which is said to possess several good features of construction that adapt it to satisfactorily do the work for which it is made is operated by broad, flat belts that run on pulleys having parallel axes. This gives ample driving capacity under all circumstances, without tendency of belts to run off, as when twisted. The machine has three adjustments, viz., vertical, horizontal and angular, each of which can be made almost instantly. The vertical adjustment enables the machine to be used on various sizes of lathes, and the horizontal adjustment enables long or short centres to be ground with equal facility. The angular adjustment admits of grinding angles greater or less than the standard, 60°, which is indicated on the machine. Emery wheels one-half inch thick are used and are counterbored for the nut, so that the wheel may grind close to a face-plate on short centres. The emery-wheel spindle is of steel and has tapered journals with end adjustment for wear. It is mounted on a dove-tailed gibbed slide, and is operated by a quick-working lever. The pulleys are all held by feather keys. The machine is driven by

a belt from the lathe face-plate, except on lathes of large size, which are driven by a pulley doweled and bolted to the face-plate.

Combination Mitre-Saw Table.

THIS is a late improvement in a combination saw bench particularly adapted to use in casket works, furniture, piano, sash and blind factories, car, picture-frame and pattern shops, or any establishments where plain, bevel or mitre sawing is required to be done in a rapid and perfect manner. It is designed with special reference to strength and simplicity. The whole machine is constructed of iron and steel. The table is one piece, four feet by three feet, accurately planed and bolted firmly to the frame. It is fitted with the necessary groove slides for ripping and cross-cutting gauges. It is also provided with removable piece allowing the use of wobble saws, dado head, &c.

The saw is raised and lowered to any desired height by a hand-wheel in front of the machine, and can be set to any angle up to 45°, or a mitre by turning a hand-wheel at the side of the machine. An accurate index, with the degrees of angle, is at the front of the machine in sight of the operator. The table is provided with an improved bevel-slitting gauge and cross-cut or mitering gauge, which, in connection with the angular adjustment of the saw, enables the operator to get every conceivable plain or double mitre ever required.

The top of the saw table is the pivot that the saw swings on, hence there is no necessity for sliding or tipping table for any purpose. The table is slotted for and furnished with a 16-inch cross-cut saw. The countershaft and tightener are a part of the machine, and can be run wherever a belt can be brought to them. The tight and loose pulleys are twelve inches by six inches, and should be speeded to suit the saw.

Back-Pressure Valve.

A BACK-PRESSURE valve designed for use in exhaust-steam heating is so arranged that while any desired amount of back pressure may be carried, the sensitiveness of the valve is such that it will open and close with a variation of not more than one pound pressure. There are no stuffing-boxes, and the released pressure acts through the diaphragm in such a way as to make very little friction. The diaphragm is made of either sheet copper or vulcanized rubber, as circumstances may require. Where live steam is used with exhaust steam for heating purposes, a sensitive, reliable and tight back-pressure valve is especially essential, as with a leaky valve the live steam will escape with the exhaust, instead of being held in the heaters or heating apparatus. This valve can be made as a globe valve, and can be used on either vertical or horizontal pipe.

Sedgwick Automatic Paper-Feeding Machine.

VARIOUS automatic devices for feeding paper to ruling-machines and printing-presses have been suggested, and among these the improved machine illustrated has taken the position to which its merits entitle it. Indeed, it is said that the "Sedgwick Feeder" is the only one that has been successful and now in use. It combines the features of a number of patented devices and improvements introduced since March, 1873, and extending up to the present year.

With this machine the paper is separated and fed almost identically in the same manner as is done by hand, only one corner of a sheet being separated at a time. By means of three iron fingers, one of which is at all times upon the pile of paper, which it holds securely, the separated sheet is pushed forward, the paper being fed up automatically as the sheets go out. The table holds from one to twelve reams of paper, as required.

The machine combines simplicity of construction, durability, economy of time and labor, with efficiency of work, and is coming largely into use in paper mills, blank-book manufactories, and for paper-rulers, as it embodies all of the valuable improvements made in its line, feeding paper of larger size faster than is done by hand, doing the work as well, if not better, its steady working greatly increasing the production, feeding light or heavy paper with equal dispatch, easily and quickly adjusted to different sizes of paper and taking up little, if any, more room than when feeding by hand.

Double Surfacar and Jointer.

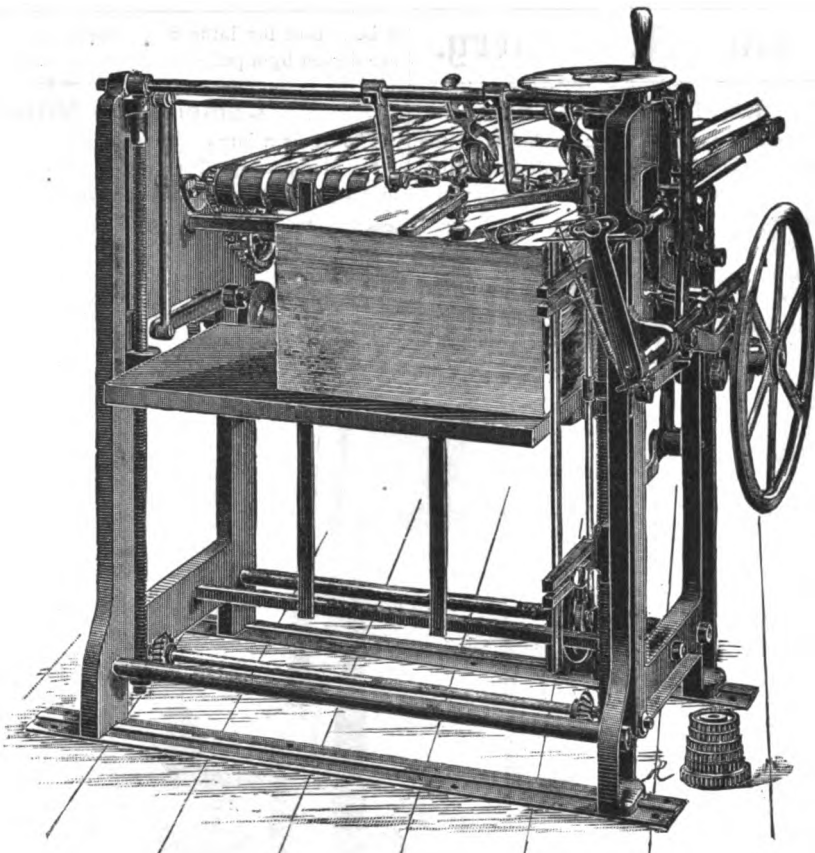
A NEW endless-bed double surfacer and jointer is intended for all grades of heavy work, and is suitable for the various sizes of heavy timbers used in the construction of houses and other buildings. The machine is fitted with the latest improvements in planers, and also embodies several new and important features. It is made to work 26 or 30 inches wide, as may be ordered, and up to 12 inches thick, with upper and lower cylinder. By combining the jointing attachment the material may be surfaced on all four sides from 22 inches wide by 8 inches thick down to 4 inches wide by $\frac{3}{4}$ inch thick.

A novel feature of the machine is the surfacing of two pieces of timber on three sides at one operation. This is accomplished by placing a guide between the jointer-heads and running a piece of timber through on each side of the guide. Work of this kind may be done with timbers each $11\frac{1}{2}$ inches wide by 8 inches thick, down to as small as 3 inches wide by $\frac{3}{4}$ inch thick. The capacity of the machine, comparatively speaking, is without limits, and the special advantages which it possesses render it desirable in various wood-working establishments.

The feed works are very strong and powerful. Swinging pressure bars are used, and their simplicity enables the operator to readily understand their working, and as they are self-adjusting they require little or no attention. There are two separate and distinct bars, entirely independent of each other. They are swung so as to come as close to the cutting edge of the knife as possible, and are arranged so as to be moved entirely out of the way of the operator when filing and adjusting the knives or giving any attention to the cylinder that may be necessary.

These pressure bars are supplemented by patent rolls, which are of such a nature as to admit two pieces of timber of different thickness at one time. In speaking of this machine the makers state that heretofore operators have experienced much difficulty in feeding heavy stuff to the machines, on account of the necessity of raising up the outer end of the timber in order to gain entrance. In the present machine this difficulty is entirely overcome by means of an ingenious device in connection with the feed-rolls, which raises them to the required height and allows the timber to enter freely. The operator controls this movement by a lever, which works easily, and which accordingly saves him much trouble and annoyance.

The jointer-heads are easily adjusted, run smoothly and without jar. They are driven from a countershaft at the out-feeding end of the machine. The bed may be raised and lowered by hand or power at the option of the operator, and this may be done while the machine is in motion, if desired.



THE SEDGWICK AUTOMATIC PAPER-FEEDING MACHINE.

New Buzz Planer and Molder.

THE Perfection buzz planer and molder is an entirely new tool and has features which are of interest to those who employ machinery of its general class. It is a buzz planer, jointer and molder combined. The frame is cast in a single piece. It stands on three legs, and on this account the boxes are not liable to be strained out of line. The tables are elevated on continuous slides, which are perfectly rigid under all circumstances. The maker asserts that it is impossible to get the tables out of line. The boxes are cast in a separate yoke, and are adjustable vertically by

set-screws, so as to be kept in line with the table surface. The cutter-heads are steel forgings made in the most careful manner, well balanced; will run cool and tight at the first starting. The boxes are self-oiling and provision is made for cleaning the reservoir. Both sections of the table have horizontal adjustment to and from the cutter-head, independent of the inclined ways. The gauge is adjustable to 45° and to any point between that and a right angle. There is also provided a special molding attachment which is particularly valuable to carpenters and also in jobbing shops, planing mills and furniture factories. The cutter-head is slotted on the sides not occupied by the plane knives, and molding, beading, tonguing and grooving as well as other special knives can be attached without removing the plain knives. It is thus possible to do a great variety of special work, which is often necessary in preparing the inside finish of buildings. The special features of this machine are patented.

A NEW surface-grinding machine is adapted for grinding and finishing hardened dies and punches, and parts of machinery requiring true surfaces. The spindle and boxes are in a slide, which carries the wheel across the work; the wheel cutting in this way, it is claimed, doing more accurate work than when cutting with the face. The length of the stroke is adjusted by a crank. The machine has automatic feed, and feeds in either direction. It is useful in shops where dies and punches are used, as they can be sharpened better by using a machine than in any other way.

Double-Spindle Shaper.

AN illustration is given of a new iron-frame and iron-top double-spindle shaper manufactured by the Battle Creek Machinery Company. This machine has short spindles provided with short and long chucks, for holding stem and eye cutters for both surface and edge work, thus providing for routing and grooving on the surface of lumber, as well as for doing all kinds of shaping and edge molding. By this arrangement of spindles and chucks, the Boulton patent dovetailer can be used on it, thus giving it advantages which other double-spindle shapers do not possess. The makers also claim superiority in style and quality of work, in fine adjustment and substantial working parts.

Board Shears.

BOOKBINDERS' machinery has been so much improved in the last five or ten years that any new machine put on the market now has to have special merit to be a success. This feature is believed to prevail in the new board shears of which an illustration is given, and which those who have examined and used it say fills a long-felt want and enables the binder to do his work accurately and at greatly increased speed.

This machine is thoroughly well made and braced so as to be very stiff and solid. The side-guide is held at right angles to the knife by a planed bead on the bottom of the guide, which fits in a V-groove in the bed, always bringing it true to the knife and doing away with all adjustments. This is an invention which invites consideration, and as the squareness of the guide is a very important matter, this one thing alone would make the machine desirable.

Another improvement, fully as important as the first, is the shape and stiffness of the clamp, and the style in which it works. It is made of wrought iron, half an inch thick and three inches wide in the centre, and it is brought down parallel with the bed by rods at each end, and the moment that pressure is taken off it is raised by a weight. Coming down level with the bed makes it always ready for a single sheet of paper or the thickest board and does away with all adjustment.

The knife-bar is held in journal bearings, with centres to adjust and set it true with the lower knife, and being clamped securely in wide bearings does not slip or move sideways when cutting through heavy boards. The bar is extra stiff, and the leverage gives a powerful cut.

To give still another advantage, the front guide is moved backward and forward by a simple rack and pinion under the bed, and the motion is given by a hand-wheel at the side of the frame, convenient to the operator. The front guide moves parallel with the knife all the time, and is fastened by the thumb-screws, so there is no danger of its moving in cutting large lots of boards.

Either of these three improvements would be enough, it is claimed, to make the machine sought after by those who appreciate that time saved is money made, and the combination of all of them makes this table shears invaluable.

A NEW form of electric motor and generator is mounted on a base common to both, and their armatures are both carried by the same shaft, with fixed pole pieces and removable electro or permanent magnets arranged to be changed for others, the apparatus being intended for demonstration in schools, for medical use and a variety of purposes.

Improved Band Saw Mill.

AN improved band saw mill, designed by G. M. Hinkley, is strongly recommended for its durability, economy and rapidity of action. The base or bed-plate, which is cast hollow and planed top and bottom, is seven feet square and ten inches deep, and rests on a cast-iron frame. The frame, although not a part of the machine and not necessary to its proper placing, is a desirable addition. The upright column is of cast-iron, round and tapering, spreading at the bottom sufficiently to give a perfectly solid bearing on the bed-plate, to which it is securely bolted. The

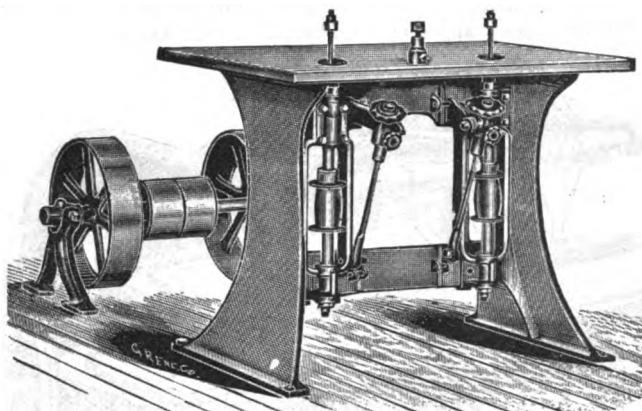
wheels each measure 9 feet in diameter with 8-inch face. The lower wheel is cast-iron, with a double row of spokes, set staggering into a heavy cast-iron rim, so constructed as to be free from casting strain when finished and balanced, thus making the wheel perfectly steady under motion. On the outside of the iron rim is bolted a hardwood rim. The weight of the lower wheel is about 3,000 pounds, and it is designed to act as a balance-wheel when running, to prevent any check in the saw when it strikes the end of a log. The top wheel is constructed almost entirely of the best seasoned hardwood, with the object in view of making it as light as possible and

at the same time perfectly rigid. The spokes are set flatways against the motion of the wheel. With this arrangement an atmospheric resistance is continually exerted, pulling back on the cutting side of the saw when in motion. By this means over-running is prevented, which otherwise occasions looseness and vibrations of the band, resulting frequently in the breaking of saws, in cases where both wheels are of about the same weight and make.

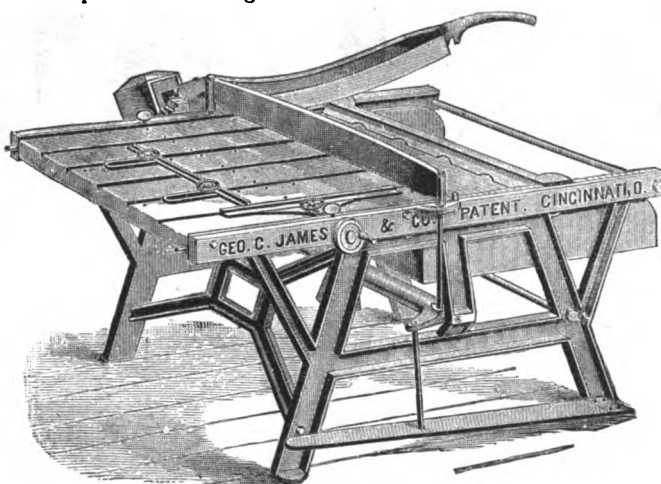
The necessity of tipping the top wheel one way or the other when sawing, in order to make it "stand up to the feed," is obviated in this mill by a special device which causes the saw to take the desired position on the wheels when properly strained. A tightener is provided to be applied to the back side of the saw but is not really necessary, and in many instances it is kept thrown back and not called into use. Its purpose is not to steady the action of the cutting edge of the saw, this being insured by the construction of the wheels as already explained, but merely to steady the back side

of the band and prevent any vibration which might occur at that point. A feature regarded of special importance is that the top guide is so constructed that it is not necessary to raise it above the knees of the carriage in order to saw it up to the last board, as it projects only five-eighths of an inch beyond the band. The arm carrying the guide is raised and lowered by a power-screw, operated by means of double frictions with a lever within reach of the operator. The feed works are strong and simple. The inside of the bevel-gig wheel is paper, as is the outside of the small feed friction-wheel, the intermediate being iron. At the end of the feed-shaft is a pinion working in a large cog-wheel which drives the spool-shaft. Although a friction feed is supplied when preferred, the use of a steam feed is advised. The saw remains in position when gidding, and the carriage is offset on its axles by a simple and powerful lever movement.

A NEW rotary steam-engine consists of a concentric disk and shaft, with valve provided with inlet, outlet and reversing ports, and devices to operate the valve from the main shaft, the engine being direct in its action, while it can be reversed at any point of its stroke.



DOUBLE-SPINDLE SHAPER.



BOARD SHEARS.

Stitcher and Knot-Tying Machine.

THE accompanying engraving represents Elliott's thread-stitching and knot-tying machine, which is believed to be one of the most remarkable and ingenious machines of the kind yet brought out. In this machine the inventor has accomplished, in a simple and practical manner, what has heretofore been considered impracticable, viz., the tying of a square knot by machinery. Such machines have heretofore been classed with perpetual-motion machines and similar impossibilities. But as what is supposed to be the impossible is always the unexpected, and as the unexpected is always happening, this machine is a logical consequence of invention, novel and ingenious.

The desirability of such a machine will be at once apparent to all bookbinders and stationers, and others of that class of trade, as shown by the success of the wire-stitching machines, which mode of holding a number of sheets together has been adopted in most cases, because, when stitched with thread by hand, the girls will not tie a knot that cannot be drawn out by a slight pull. With this machine this objection is overcome, and added to the great speed obtained puts a thread-stitched pamphlet, with a hard, square knot, in active competition with the speed attained by the wire-stitching machines. It runs at the rate of fifty stitches complete per minute, and its capacity per day ranges from 10,000 to 20,000, according to the class of work and ability of the operator.

As a machine it also has some very ingenious points, all tending toward simplification. As an engineer expressed himself, "It contains much omitted and nothing forgotten." It has only one shaft and no gears. The cams are all round and of the same diameter outside; in fact, cast from one pattern. They are cut from the solid metal by special machines. The cams consist of a disk, backed up with six ribs or arms; the groove is cut entirely through the disk, leaving the cam rollers in plain sight from back of cam, and also enables the rollers and studs to be taken out without disturbing any other part of the machine.

All of the connections are adjustable by screw arrangement, which is solid and cannot change or work loose, and yet may be adjusted to the one-fortieth of an inch. This is of great usefulness as a means of adjustment in taking up any possible wear, and the saving it accomplishes in building a perfect machine is incalculable. The machine makes a perfect stitch, ties a square knot and cuts off, all in one operation, with either linen, cotton or silk thread.

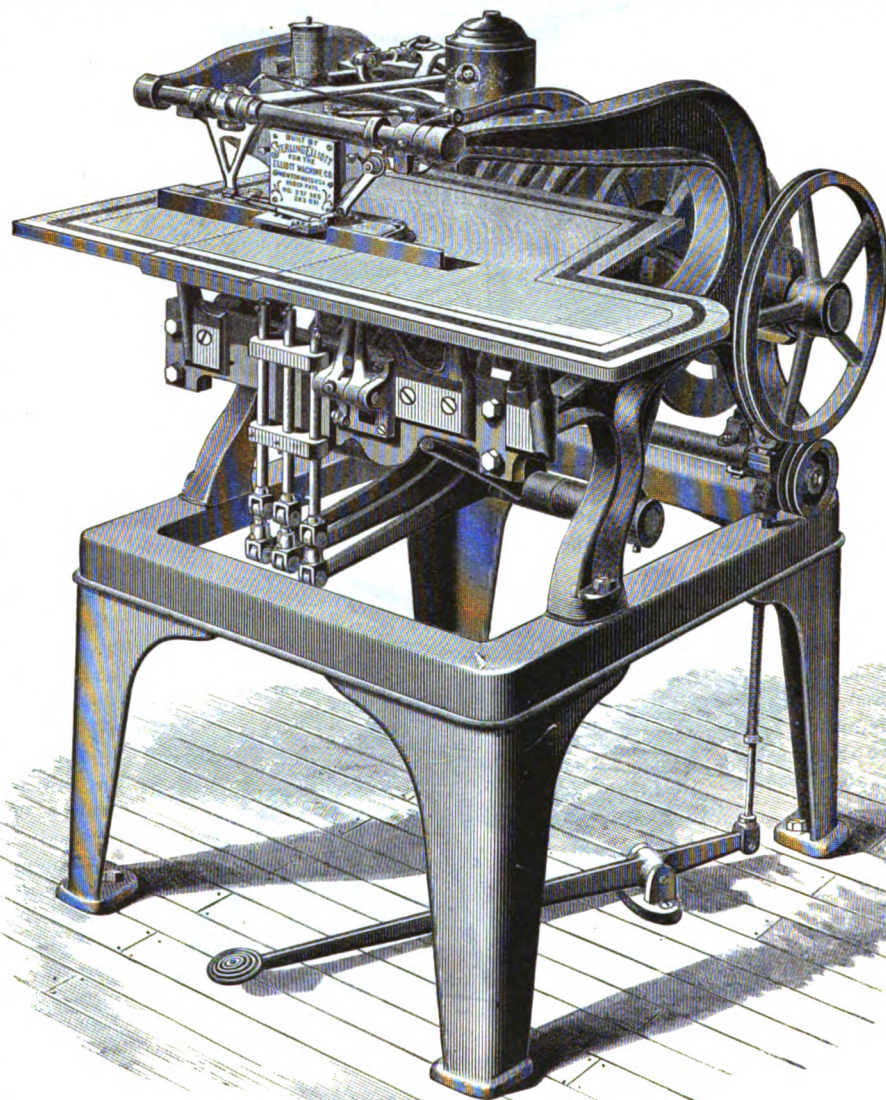
The operation of the machine is in some respects similar to that of a sewing-machine, though the needles do not require threading as in

the sewing-machine. In this machine, for ordinary work, three needles are used, and what serves the purpose of a shuttle.

Ore Concentrator.

ONE of the latest improvements in mining plants consists of an ore concentrator, simple in construction and which will effectively concentrate the heavy and light particles of the precious metals. The main driving-shaft extends along one side of the machine, and at each end is provided with a beveled gear engaging with a similar gear on an upright shaft. At the upper ends of these shafts are cranks and pins, to which are attached rods securely fastened to the frame carrying the belt. The belt frame hangs on four swings, and is easily given

a rotary motion. At the lower end of these swing rods are screws, whereby the belt frame can be adjusted up or down, so as to bring the belt perfectly level. There are four large and twelve small rollers, over which the belt travels. The one at the head of the machine drives the belt by means of a screw gear and vibrating connection. The next roller carries the belt down into a box containing water, where the gold and other metals are washed off. The next roller acts as a tightener and also raises the belt higher than the end one, so that the sand and water will not run back under the machine. The fourth large roller is at the rear of the machine. The twelve small rollers are placed under the belt on top of the frame, to give a smooth surface to the belt. The machine is run by a driving pulley placed at about the centre of the main shaft. The feed gear is worked by means of a belt



STITCHER AND KNOT-TYING MACHINE.

on cone pulleys. The pulp or sand from the battery is delivered to the machine through a hole in the centre of the distributor, and is spread evenly over the belt. The water distributor on the front furnishes an extra supply to more effectually wash out the sand. Each edge of the rubber belt is provided with a rubber tube or hose, of such size as to prevent the water and sand from running off. This construction insures durability, as the flexibility of the belt allows it to easily pass over the rollers without danger of breaking. It will be seen that this concentrator is so simple that the services of a thoroughly experienced person are not required to operate it. The easy rotary motion of the belt carries gold sulphurets and all heavy metals to the bottom, and holds them there while the sand is washed away. As this rotary motion is smooth and continuous, the belt can be run faster than in machines having a vibrating movement, while it washes the sand away quicker and saves lighter and finer dust. It also requires a minimum amount of power to work it.

Hardware.

Arc-Scales.

THE arc-scales illustrated herewith embody an entirely new invention—a discovery as well as an invention. The principles employed are very direct and simple. Figures 1 and 2 show the arc-postal scale, known as the "Little Wonder." It is a device invented expressly for the purpose of placing before everybody the postal law in four lines, relating to rates of postage. It gives on its dial the exact amount of postage which must be prepaid in stamps upon each letter, piece of merchandise, book and newspaper sent through the mails in the United States and the Dominion of Canada, and can be adapted for use in other countries.

On the low line of the arc or dial are the figures 2, 4, 6, 8, &c., up to 32 cents postage for letters (sixteen ounces one pound). This shows just the number of cents in postage stamps to be affixed to the letter, the weight of which has drawn the indicating wire over or near the figure. Thus, when the wire does not pass the figure 2 the postage for a letter is but two cents, and when it does pass that figure, toward or at the figure 4, the postage is four cents, and so on.

On the second line the postage on merchandise is similarly shown, each figure standing for the number of cents in postage stamps, to be placed on the package weighed.

The third line shows in like manner the postage on books, catalogues, pamphlets, &c.

The fourth and upper line shows the postage on newspapers and other regularly issued periodicals, one cent for four ounces.

In Fig. 3 is seen the same principle employed for home use in weighing merchandise, groceries, &c. There is nothing about it to wear out or rust. It has a neat tin scoop for flour, sugar, &c., and a strong hook for meats. The scale is reversible. On one side it weighs ten pounds, marking quarter pounds; on the other side it weighs four pounds, marking ounces accurately. Fig. 4 shows the "Everlasting" scale, arranged to weigh articles up to fifty pounds.

Combined Square and Mitre.

A TOOL of new design is a combined square and mitre. This tool is ten inches in length on the long arm, the connection between the two arms being cast somewhat thicker than the blades, so as to form a head, thus adapting the tool for use in scribing, and also makes it very convenient for drafting purposes. The head is cored out, so as to lighten it without diminishing its strength. There is no adjustment required, nothing to get out of order, and it is always ready for use. The construction of this tool is of a character to preclude the danger of injury from falling, which frequently occurs to tools of its general class.

The blades are of steel, well finished, and the entire tool is nickel-plated. Graduation on the horizontal blade is to eighths of an inch. The entire length of the handle comes next to the work, thus insuring perfect work.

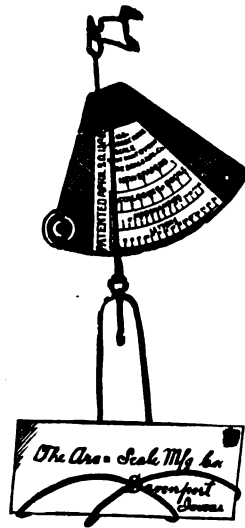


Fig. 1.



Fig. 2.

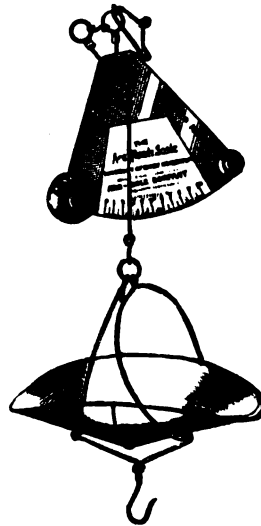


Fig. 3.

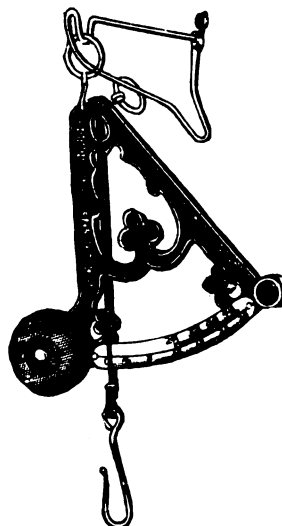


Fig. 4.

ARC-SCALES.

Hand-Truck.

A VERY convenient form of hand-truck is so constructed that it can be used as an elevator for loading boxes, sacks and other heavy articles into wagons. In the inner sides of the upper part of the frame are formed grooves, in which slide bars of a frame, to the lower part of which are attached plates that overlap the side-bars of the main frame. A toe is formed at the lower end of the plates. To the centres of the cross-bars of the sliding-frame is secured a rack-bar, the teeth of which mesh with a pinion on a shaft driven by gearing operated by a crank-handle at the side of the main frame. By properly turning the handle, the frame and its load can be raised, a pawl and ratchet-wheel preventing the gearing from turning back. To the legs of the frame is hinged the forked upper end of a long leg, upon which the truck is supported when raised into an inclined position, so that the crank can be conveniently operated to raise the frame and load. When the load has been raised to the required height, it is held in place by the pawl, and can be placed in the wagon by swinging the upper part of the truck forward upon the toe as a fulcrum. When not in use, the leg is held against the under side of the truck by a spring clamp.

Spiral Screw-Driver.

THIS screw-driver is especially adapted for light and rapid work, and much time can be saved by its use where large quantities of small screws are to be driven. Placed upon a spirally-threaded shank within the lower end of a hollow handle is a nut which is free to revolve within the handle. When the point is inserted in the nick of a screw and pressure is brought to bear upon the handle, this nut is raised slightly and brought into engagement with a clutch, which holds it so that continued pressure upon the handle revolves the shank and thus drives the screw. To draw a screw, the shank is pressed into the handle, when the tool can be used as a common screw-driver. If desired, it may be used, when extended, as a common screw-driver, by simply giving the shank a twisting jerk, causing the nut to recede and become locked. The use of this tool does away with all tiresome turning of the hand and twisting of the wrist, all the work of driving the screw being accomplished by simply pushing.

A CONVENIENT tool is to be found in the "diamond-pointed" nail set, which has a point at the end, for the purpose of preventing the set from slipping from the head of the nail while in use, thus saving in many cases serious damage to the wood. It is asserted that with this tool a mechanic can follow a nail through any piece of stuff without the set slipping off. The sets are carefully made from the best quality of tool-steel. The parts are turned and thoroughly tempered. Several sizes are manufactured.

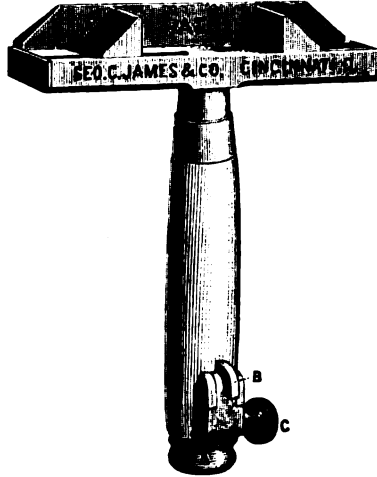
A NEW form of shot cartridge has the individual shot connected together by wire, twine, a chain or other suitable means, to limit the spread of shot or bullets after they leave the gun, the wire or twine, &c., being wound around the body of any light substance, such as cork, pith or paper, that will allow of easy detachment.

Lettering Pallet.

THE patent lettering pallet herewith illustrated has the advantage that now rules the manufacturing world, "it saves time."

This is done by the construction, which puts all the parts that have to be touched or handled in any way at the end of the handle, where they are convenient and *keep cool*. The working parts are simple and not liable to get out of order. The clamping is a cross lock which stays just where it is put, and the type can be held firmly without being squeezed too tight. The round knob A at the end of the handle moves the jaws freely and always brings the type in the centre and does away entirely with any necessity for quads to fill out the line, as has been done heretofore. When the jaws are closed to the type the pawl B is closed down, and the wheel C is turned to lock the type. The whole motion is so quick that it only takes a few seconds to change from the longest to the shortest line.

One great advantage of this pallet is that the jaws cannot give back with use or get out of square, as each one is riveted solidly to a steel rod which slides in the holes that extend through the head of the pallet. No matter how old the pallet may be the jaws will always be true. This tool has found favor with bookbinders wherever used, and it is believed will meet with general approval.



LETTERING PALLET.

still another the feet are three elephants' heads, the tusks and trunks resting on the table. A pretty lamp is shown in hammered brass, its square fount being covered with scroll-work and floral designs, the front and back having insects in relief among the flowers, while two reptiles' heads and necks form the handles. Bronze also contributes its share, and is presented in many diversified designs.

Floor lamps have come more and more into use of late, and beside a desk, table or piano are not only effective as decorations, but also serviceable. That illustrated is of brass, and very delicate and fine work is to be seen in the metal. In another the stand is a crane's leg and foot fashioned in brass, the fount showing scale work and slips of cut-flowers. Fanciful designs are worked out on the founts and stands of these lamps, and almost as much variety is shown in them as in the table-lamps. One can have any sort of a shade that he pleases, and one of the latest wrinkles is to put over the shade a cover made similar to a parasol top, the material being of silk lace, cretonne, satine, &c. These extra shades are unique decorations, and the light coming through the colors and tints in the various patterns produces very charming effects. Shades and chimneys are

furnished in the same ware and in a variety of colors, the globes being plain or decorated the same as the lamp-founts, and having plain or crimped tops. Chimneys are furnished to match all of the different styles and colors of globes.

Much attention has also been paid to hall lamps, and they are now to be had in cylindrical, square, octagon and other shapes, the enclosure of the light being of various fancy wares, set in brass, copper or nickel fittings, the ware being decorated in the same manner as globes and chimneys. Some neat and novel designs are shown in bracket hall-lamps, the combination of beautiful ware and metal being shown here as in the other lines.

Combination Tool.

THIS tool consists of a socket-wrench, hammer and screw-driver, and is especially adapted for the use of stove assemblers and repairers. The body of the tool is formed with a T-head or handle portion, one extremity of which is in the shape of a screw-driver, while the other forms a hammer-head. The lower end of the body is forked and formed with a socket; between the forks is placed the wrench portion, the body of which is cut away to form a shank and shoulder. The shank is provided with a long slot, through which and the forks passes a rivet, and the top of the shank is formed with a lug which enters the socket in the handle, thereby holding the wrench portion rigidly in the handle when used as a straight socket-wrench. The lower end of the wrench is formed with a square nut-receiving recess, and a cylindrical socket to receive the screw-threaded end of the bolt. When arranged in one position the tool may be used as a screw-driver, a hammer or a straight socket-wrench, and by drawing the wrench portion down and turning it one side or the other, a wrench is formed for the purpose of getting at nuts up under flanges and other inconvenient places. To bring the tool to the first position it is only necessary to swing the wrench in line with the body and push it up into the forks, the lug then entering the socket.

Fancies in Lamps.

NOTWITHSTANDING the general use of gas and the progress of electricity as an illuminant, oil still holds its own, and even in houses where gas has for years held sway, and where oil was scarcely used, the fancy lamp of the period, with its beautiful work and artistic decoration, is now to be found. In plain lamps, that known as the "Student" is perhaps pre-eminent as giving the steadiest and softest light for the reader or the writer, while its effect on the eyes is less severe than any other. It is furnished with single or double burners and with a vast variety of decorated shades, so that the practical and ornamental may be combined in the same article.

Of late years, however, a large number of purely fancy lamps have come into the market, and brass, copper and bronze have been worked out in artistic forms for the founts and stands, while all of the long list of celebrated wares have been pressed into service in making the shades and chimneys.

While, perhaps, these various styles of lamps have been brought out primarily in response to the growth of the art idea and the constant demand of the people for something new, vast improvements have been made in the practical part of the lamp—the burner—so that excellent illumination is the result. In the table lamps in metal a profusion of styles is to be found in the market, and in the multiplicity of riches spread before him the purchaser is often at a loss for a choice. There are some with massive founts, decorated with bands and panels and heads, some having two figures of men, one on each side, which serve as handles. Still others are decorated with figures, portraying beasts or



PARLOR LAMP.

birds with human heads, while the sides of other founts have historic scenes depicted upon their sides in bas-relief. The "Flower-Pot" lamp has a square fount, with various potted flowers in bloom worked in metal on the sides. Another fount is fashioned as an owl, the burner resting on its head; and the "Dragon" lamp has a cylindrical fount in alligator pattern, with a dragon crawling about it, while in



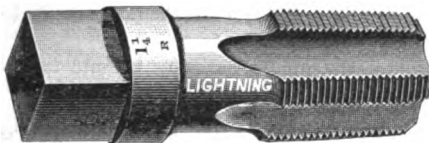
FLOOR LAMP.

"Lightning" Taps, &c.

AMONG the specialties of American production are machine taps and dies, to the manufacture of which great care and attention have been given with a view to insuring such perfection as to design, quality and efficiency as to make them models of mechanical construction, no matter in what country they may be used or in what competition they may be entered. In this line of manufacture the Wiley & Russell Manufacturing Company has taken an important share, and the accompanying illustrations show the designs of several forms of "Lightning" taps which will attract attention. These taps are made from the finest steel, and are "machine relieved," the teeth being chased by special machinery with perfect precision and uniformity as to shape and size, with a regular and symmetrical relief. The machinists' hand-taps are made in nineteen sizes, from 3-16ths of an inch to 2 inches, left hand and right hand. Pipe taps come in eleven sizes, from 1/4th of an inch to 3 inches. The machine taps of the design illustrated are manufactured in twenty-one sizes, from 1/4-inch diameter to 2 inches. The blacksmiths' taper taps are of excellent design and finish, made to cut sharp and easy, and are to be had in twelve sizes from 1/4 inch to 1 inch. The "Lightning" taps are also adapted for use in bit braces and thus become valuable tools for carriage work and many other purposes. Besides these, the same firm manufactures taper and fluted reamers, twist drills, counter-sinks, fluted drills and a variety of other machinists' and blacksmiths' tools.

Adjustable Rule Attachment.

A USEFUL tool is found in an adjustable rule attachment, which is designed for the use of the carpenter, cabinet-maker, coach and car builder, as well as for other mechanics who have occasion to draw lines and construct angles. In use it is applied to a common 2-foot, four-fold boxwood rule. Used as a



PIPE TAP.

marking gauge, the point or pencil, as the case may be, is readily set by the end of the rule, and when in position a rod carrying the pencil or point can be turned so as to bring the end of the pencil against the rule, thus determining to a nicety the distance of the line to be drawn parallel with the head of the tool. After the pencil has been so adjusted the rod is revolved in its socket and is fastened in place by a thumb-screw. The attachment may be also used as an angle-gauge for right and left hand mitres. The flanges on the side of the tool are mortised in such a way as to permit one fold of the rule to pass through them, and when in this position the lines scribed will form a perfect mitre with the face of the tool. The reverse mitre can be obtained by putting the rule through the tool in the opposite direction. Still other applications are possible. The makers enumerate the following functions performed by this device: With the tool applied to a common rule the mechanic secures a try-square from 1/4-inch to 12 inches; a mitre-gauge, right and left hand, with either long or short tongue; a mortise-gauge, accurate, and quickly applicable for laying out work; a scribe or marking-gauge; a depth-gauge, convenient and valuable for squaring mortises and tenons; a pencil marking-gauge used to advantage for putting on locks and butts, and unequalled for doing short work about doors and windows.

The tool is also provided with a threaded hole near the back of the space into which the rule slips, and which receives a point that is furnished with the tool and which serves as a centre for striking circles. With this centre put in place, and a pencil placed in the sliding holder,

circles can be described varying from 7 to 14 inches in diameter. This affords a tool in character equivalent to trammels in addition to the other uses already enumerated.

Drag Saw.

A DRAG saw which is light and strong, and which may be used for light or heavy cutting, both vertically and horizontally and at intermediate angles, has the saw blade connected by a bolt with the lower end of a pendulum bar, through a long slot in the upper part of which passes a bolt having a wing nut, the bolt also passing through an upright lug on the main bar of the frame. The pendulum bar may thus be held at any desired height, and will be free to swing on the bolt as the saw-blade is reciprocated. The sidewise motion of the pendulum bar is prevented by a guide-bar, attached to the main bar. The back end of the main bar is connected by a bolt with the upper end of a post, whose lower end is pivoted to a yoke held to the base. By placing the lower end of a brace-rod attached to the post in one of a series of holes in the base, the frame may be inclined to cause the saw to cut

at any angle, and by shifting the yoke toward one end of the base-bar, the post may be swung down flat upon the top of the base, when the saw-blade will be made to cut in a horizontal plane for felling trees or similar work. When starting a cut the blade is guided by a slotted block, fixed to the forward end of the main bar, which is also provided with a dog, which may be driven into the log or tree to steady the machine while at work. The saw is operated by means of a handle-bar, pivoted to the end of the saw-stock by the same bolt that holds the stock to the pendulum bar. A spring secured to the forward end of the handle bears upon a pin held to the saw-stock in front of the pivot bolt, so that by raising the rear end of the handle the spring may be made

to force the saw downward and cause it to do effective work for the whole length of its stroke.

This tool can be



BLACKSMITHS' TAPER TAP.

easily folded into a small space so as to be convenient for storage or transportation.

Detachable Handles.

A NEW series of chisels and gouges have been put upon the market, their special feature being the handles which are detachable, quickly and easily adjustable and interchangeable. Where the shank fits in the handle a piece of dried rawhide is inserted to receive the stroke and prevent upsetting either of the handle or shank. Only two handles are necessary for a full set of chisels, ranging from 1/8-inch

to 2 inches, one handle for firmer chisels and a bent handle for paring chisels.

The blades are drop-forged of the best quality steel,

and carefully tempered. The shanks of blades and the sockets in the handles are finished to a standard gauge, so that in ordering extra blades at any time they will be sure to fit. These tools are put up in a neat case, 14 x 2 1/2 x 8 inches, thus giving a package light and convenient, in which the tools are always in place and out of the reach of dust and dampness. A set of gouges is also made to be used on the same handles. Such a set comprises eighteen bits, of which twelve are sharps and mediums, and range from 1/8 to 2 inches. Six are flats, and range from 1/2 to 2 inches, cutting all sizes from 1/8-inch circular to 20 inches circular. The latter set, including handles, blades and case, weighs about eight pounds, and is said to meet all of the requirements of the class of work for which it is designed, occupying but small space on the bench or in the chest. The handles are second-growth white hickory and the sockets are nickel plated.



MACHINE TAP.

Metals and Mining.

California Marble.

THERE are several marble deposits in California, but none have been worked to any extent. In Amador County, nine miles north of Ione, a good white marble is found suitable for building stone. Near Pence's ranch, Butte County, there is quite a large deposit. In Calaveras County there is found a pearl-gray marble with dark marking. At the Alabaster Lime Works, near Newcastle, Placer County, the marble varies from a pure white to an agreeable gray color, and takes a high polish. A beautiful mottled gray marble has been brought to the State Museum from near Eureka, Humboldt County. A yellow marble is found in Kern County, near Tehachapai. Both light and dark colored marble have been found in Los Angeles County. Fine white marble is also found near Carmel Bay, Monterey County. Several deposits were found near Auburn, Placer County. Extensive beds are known in Tuolumne County.

Mica.

THIS mineral is found all along the eastern slopes of the Appalachian system on an almost continuous belt from Maine to Alabama; in numerous places it is mined in the New England States. In New Hampshire mica mining is quite an old and established industry along the belt of the country southeastward of the White Mountains. In all the Southern States it is more or less abundant. Mica mining has also assumed importance of late in the Black Hills, Dakota. In the best mine there only about five per cent. of the total mica extraction is of merchantable quality. Some of the finest sells for \$3 to \$4.50 per pound. Custer County, Dakota, up to July, 1884, had produced 124,640 pounds of marketable mica, worth \$442,589. In Colorado, Wyoming, New Mexico, Arizona, Oregon and Alaska the mineral has been found, and in many places in California. The best in the country comes from North Carolina and Dakota.

Within the past two years mica of the best quality, known as muscovite, has been discovered in Canada in marketable sizes and in paying quantity, and to-day several deposits capable of being developed into fairly productive mines are known. Two in the county of Frontenac, Province of Ontario, show well-formed, large crystals at the surface, imbedded in white quartz; another in Wakefield has been uncovered, and numerous "crystals" have been exposed, which, though small, are of excellent quality. In the Lake Superior and the Lake of the Woods districts good mica has been discovered in paying quantity, and a company has been formed in Winnipeg to work an important deposit in the last mentioned locality. In British Columbia, also, a fairly good quality is known to exist, but no attempt has been made as yet to prove the size of the available "crystals" or the extent of the deposit in that province.

Coke Production in the United States.

FOLLOWING are the figures of the production of coke in the United States in 1885: Alabama, 301,180 short tons; Colorado, 131,960; Georgia, 70,669; Illinois, 10,350; Indian Territory, 3,584; Kansas, 8,050; Kentucky, 2,704; Montana, 175; New Mexico, 17,940; Ohio, 39,416; Pennsylvania, 3,991,805; Tennessee, 218,842; Virginia, 49,139; Washington, 311; West Virginia, 260,571. Total, 5,106,696.

In the rank of coke-producing States Pennsylvania still stands first, with Alabama second, West Virginia third and Tennessee fourth. These four States hold the same rank as in 1884. The largest coke-producing locality in the country is the Connellsville region of Pennsylvania, in which was made 3,096,012 of the 5,106,696 tons, or 60.6 per cent. of the coke produced in the United States in 1885. The second largest producing district is what is called the Irwin-Latrobe, which lies along the Pennsylvania railroad, from Larimer to Blairsville, and is, in part, the northerly extension of the Connellsville coking field.

The statistics of coke in this country in 1885 are as follows: Number of establishments, 233; ovens built, 20,116; ovens building, 432; coal used, 8,071,126 short tons; coke produced, 5,106,696; total value of coke at ovens, \$7,629,118; value of coke at ovens, \$1.49 per ton; yield of coal in coke, 63 per cent.

The number of establishments has slightly decreased. Part of this

decrease is due to the consolidation of establishments, but chiefly to the abandonment of works of but little importance. The number of ovens in 1885 was 20,116, as compared with 19,557 in 1884, an increase of 559, 2.8 per cent. There were, however, only about half the number of ovens building at the close of 1885 that there were at the close of 1884. While the production of 1885 has increased over that of 1884, it is not as great as in 1883, the production in 1885 being 5,106,696 tons, as compared with 4,873,805 tons in 1884 and 5,464,721 tons in 1883. There was no increase in the value per ton of this coke in 1885 over 1884, nor has there been for three years. There was, however, an increase in the total value in 1885 over 1884, owing to the larger amount of the coke produced in the former year. The yield of coal in coke has also increased somewhat during the past year, it standing at 63 per cent. in 1885 as against 61 per cent. in 1884. The yield in 1883, however, was given as 64 per cent., the largest average yield of coal given, the yield for 1880, 1881, and 1882 being but 63 per cent.

The Production of Steel.

THE statistics covering the production of Bessemer steel during the first six months of 1886, as compared with the figures for similar periods in 1885, are of particularly great interest. For ingots they are, in net tons, according to the returns of the American Iron and Steel Association:

PRODUCTION OF BESSEMER STEEL INGOTS.

	First Half of 1885.	Second Half of 1885.	First Half of 1886.
Pennsylvania.....net tons.	511,720	575,672	656,342
Illinois.....	136,073	229,680	211,413
Other States.....	110,245	115,819	181,098
Total Bessemer ingots.....	758,044	921,171	1,048,853
Clapp-Griffiths ingots.....	4,400	17,247	24,810
Grand total.....	763,344	938,418	1,073,663

We believe that to the majority of the trade the returns for the first six months of 1886 will be lower than expected. They show a smaller increase over the second half of 1885 than was generally looked forward to. It is true that the product was greater than ever before, but we feel sure that, barring accidents, the make of the last six months of 1886 will be much heavier. * * *

These general statements, too, may be said to hold good for rails, the product of which was:

PRODUCTION OF BESSEMER STEEL RAILS.

	First Half of 1885.	Second Half of 1885.	First Half of 1886.
Pennsylvania.....net tons.	326,093	410,429	489,790
Illinois.....	115,073	193,169	163,073
Other States.....	11,280	18,563	53,679
Total Bessemer rails.....	452,446	622,161	707,447

These figures might be cited as proving that those are right who have held that it is impossible for the American rail mills to produce the quantity allotted recently by the combination, viz., 1,400,000 gross tons or 1,568,000 net tons. To get near that total they must show their capacity to turn out at least 850,000 tons in the second half of 1886, or 150,000 net tons more than in the first six months. * * * We know now that the demand will fully call for this quantity, and that thus far, at least, 35,000 tons have been ordered from abroad, with some round lots of blooms, for light sections of rails, and for rail mills having an excessive rolling capacity. While this department of the steel trade is therefore in a flourishing condition, other lines, notably the wire trade, are seriously depressed. The open-hearth industry has not made much headway thus far, as the following figures prove:

PRODUCTION OF OPEN-HEARTH STEEL INGOTS.

	First Half of 1885.	Second Half of 1885.	First Half of 1886.
New England, New York and New Jersey.....	12,255	6,008	9,261
Pennsylvania.....	39,909	54,928	61,590
Southern and Western States.....	16,614	19,606	21,689
Total open-hearth ingots.....	68,838	80,543	92,540

On the whole the showing as revealed by the first six months' work of the year is very good, and, as we have endeavored to prove, there is the promise of even greater output in the second half. We heartily indorse the prediction of the American Iron and Steel Association that this country will make in 1886 more Bessemer steel, more steel rails and more open-hearth metal than it ever produced before.—*Iron Age*.

Fancy Goods, Stationery & Paper

Acme Pad Calendar.

THE illustration herewith presented is that of a new pad calendar which has just been issued by the Acme Stationery and Paper Company. The pad consists of fifty-two sheets, each sheet containing a week and having spaces left wherein to write memoranda. The pad is mounted on a substantial metal frame, with an easel frame, so that the pad is held in an upright position on the desk. The metal frame is prettily decorated, and over the top of the pad are the words "Acme Pad Calendar." The calendar is a serviceable article, well made and is sold at a price which cannot fail to be attractive. When the pad is used up, a new one can be inserted by simply raising the metal tips which hold the pad in position on the frame.

The Polygraph.

THE polygraph is a new and ingenious invention, by the aid of which any geometrical drawing or design can be quickly and accurately drawn. It consists of a thin disk of polished brass, $4\frac{1}{4}$ inches in diameter, containing a series of radial perforations, thirty-five in number, with which circles varying 1-16th inch in radius are drawn by pivoting the instrument in the centre-hole with a pin, inserting the pencil in any of the perforations, and revolving the polygraph completely around.

In the same manner circles up to nine inches diameter are produced by pivoting the instrument in any of the perforations near the circumference.

A series of chords is cut in the disk, each of which is the side of a regular polygon, inscribed in a circle of two inches radius, and by laying off the respective lengths a corresponding number of times drawings of 3, 4, 5, 6, 8, 10 and 12 sided polygons are produced. On the outer rim a protractor is seen with which any angle from 0° to 360° can be laid off.

In addition various curves, circles and scrolls are cut in the instrument, enabling an infinite number of combinations to be produced. There are several minor points in connection with the polygraph which will be quickly discovered and appreciated by all who have any occasion to use the instrument.

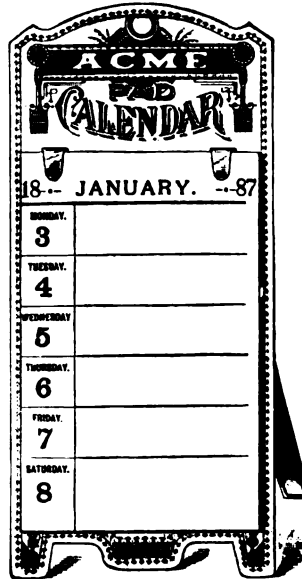
To sum up, this little instrument combines in itself the qualities of dividers, straight and curved rules, scale of inches, protractor and other features which enable anyone to produce quick and accurate drawings.

The mode of using it is so simple that any child can comprehend it, and, although primarily intended for schools, it has met with favor at the hands of designers, architects, decorators, draughtsmen, engineers and of artisans employed in every manufacturing business.

Its greatest advantage is the phenomenally short time in which designs may be drawn, thus suggesting and encouraging ideas of art, especially in the young. After a drawing has once been made it can be quickly and accurately reproduced by the polygraph; while, for purposes of demonstration, it has been pronounced most excellent

by professors and teachers of drawing. As a scientific toy it is said to be without precedent, for with the exercise of a little ingenuity free-hand drawings of animate and inanimate objects can be made, and in this connection it has been especially recommended for kindergartens.

This instrument also affords wonderful help to ladies in the preparation of original designs for all kinds of fancy work, and it can also be made a source of almost endless amusement in the home circle.



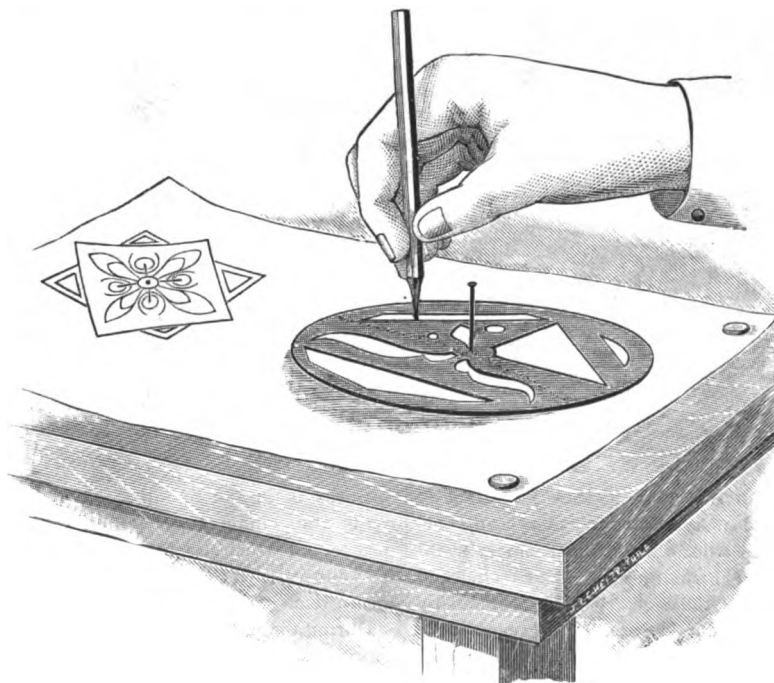
ACME PAD CALENDAR.

Draftsmen's Compasses.

AN improvement has been made in mathematical compasses, the object being to construct an instrument by means of which a great variety of figures may be drawn or set out, such as circles, spirals, ellipses and other regular or irregular forms. This is effected by constructing the instrument with a non-rotating foot and leg connected by a peculiar ball-and-socket joint, which prevents rotation of the leg, and at the same time facilitates pressing the pencil or pen upon the paper.

The ball-joint has not the usual universal movement of such joints, rotation around the axis of the leg being prevented by pins passed through the sides of the foot and into a groove formed on the periphery of the ball. The non-rotating leg is attached to the other portion of the instrument by a socket and pin. On the leg is fitted an adjustable slide, upon which a templet of any desired shape may be secured by means of a collar. Between the legs of the instrument is fixed a guide-bar, to which is attached a quadrant, a similar quadrant being placed lower down the guide-bar and passed through the stiff leg to which it may be secured by suitable means—such as a screw. The guide-bar is held against the perimeter of the templet by the action of a spring, so that when the leg is turned

round to describe the figure it reproduces an enlarged facsimile of the shape of the templet of any desired size within the capacity of the instrument, and by adjusting the positions of templet and quadrants variations of the figure may be obtained. The movable foot is provided with two or more points to prevent rotation.



THE POLYGRAPH.

Envelope Moistener.

A NEW device intended for use as a sponge holder and envelope moistener is one of the newest things in the stationery trade. The device can be utilized for other purposes, as a paper-weight or as an attachment to an inkstand, pen-rack, &c. It provides a convenient and useful means for sealing and stamping envelopes, whereby they can be readily moistened for sealing and stamp-

ing without requiring them to be wet with the tongue; and consists, essentially, of a sponge-cup which can rotate on a vertical axis, and a plate bearing upon the top of the sponge, which can also rotate on a vertical axis in company with the sponge, so that when the gummed edge of an envelope, or the part to which the stamp is to be affixed, is drawn through between the sponge and the plate, the sponge and the plate revolve and allow the envelope to be drawn through with facility.

American Industries.

The Manufacture of Carriages.

CHARLES S. CAFFREY COMPANY.

THE illustration presented on this page is that of the building recently erected by the Charles S. Caffrey Company (of Camden, N. J., U. S. A.), and used by it as show-rooms for its carriages and as repair shops. This building is in Philadelphia, Pa., U. S. A., located at 1712 and 1714 Chestnut street, occupying a frontage of 44 feet, and extending 150 feet to a rear street. The front building is five stories in height, the different floors being reached by elevators. The

also carriages sold on commission for the account of their owners. The rear building, which has six stories and a basement, is used for repairing. In this department is placed the highest grade of material, the same as used in the new work, and the workmen are skilled and thoroughly proficient. There are employed upward of fifty men in the various branches in this building. Carriages are received for repairing from all parts of the United States, from the Gulf to the lakes, and from the Atlantic to the Pacific, many customers realizing the importance of the repairs being done in a skillful manner and of fine stock as the building of the vehicle.

The principal manufactory, a description of which was given in a former issue of THE MAIL, is located in Camden, N. J., U. S. A. There every part of the carriage is constructed, and a specialty of the



SHOW-ROOMS AND REPAIR SHOPS OF THE CHARLES S. CAFFREY COMPANY.

first floor, extending the full length of the building, with the ceiling 17 feet high, is fitted up and furnished in style equaling that of any carriage show-room in the world. The woodwork in this room is sycamore finished in natural color to an egg-shell polish; the carving and decoration are very elaborate, befitting the high style of workmanship of the carriages on exhibition. On each side and on the rear wall of this room, extending the full length of the apartment, are plate-glass mirrors, 10 feet high, which produce a novel effect, making a very light room and giving the appearance of the carriages being in a great space, which is more natural and affords the buyer an opportunity of better judging what the appearance of the carriage would be on the road. On this floor are shown only carriages of the company's own make, including sulkies, track wagons, road wagons, with or without tops; phaetons of the various patterns, surreys, T-carts, cabriolets, victorias, broughams, landaulettes, coaches, &c.

The upper floors of the front building are 70 feet in depth and 44 feet wide, and are used for the storage of new work, excepting one floor, which is for the sale of second-hand carriages taken in exchange;

business is in the building of original styles, suitable for different roads and climates. Persons giving a description or stating the purpose for which they wish a vehicle will be sent an original sketch for approval. If the carriage is not in stock one will be built at a uniform price.

During the past season this establishment has been pushed to its full capacity, and besides the extensive trade throughout the United States orders have been filled for Australia, South America, Russia, France, Germany and other parts of Europe. This foreign trade is increasing, as the customers are appreciating the high grade of the work.

In the early part of the year the company built a Caffrey wagon, with leather top (of the same style as shown in the advertisement), weighing, complete, only 115 pounds. It was built for J. A. Bailly, late of the London show, and his team made very fast time with it. The Caffrey sulkies are used by all of the most prominent horses, including Maud S., Jay-Eye-See, Harry Wilkes, Phallas, Oliver K., Belle F. and Phyllis, Jewett and Gossip, Jr. Sulkies are built in sizes to fit the horse, and anyone desiring, sulkies will be furnished a blank

order giving a diagram of horse, with the points to be measured to get a correct fit. The weights of sulkies vary from forty-five pounds upward.

During the thirty-four years since the establishment of this business it has gradually grown to its present proportions. Producing only the highest grade of work and that in original and most acceptable styles, keeping abreast with progressive America, this house is reaping the harvest of the good seed sown, realizing that the world is its market and that its customers come from the uttermost parts of the earth.

Correspondence is invited, and designs will be sent upon application to the Charles S. Caffrey Company, Camden, N. J., U. S. A.

Industrial Briefs.

The Bertha Zinc Company, Martin's Station, Va., has blown in two additional spelter furnaces.

The Spreckels Line steamer Mariposa, built by the Cramps, of Philadelphia, has made the passage from New Zealand and Australia to San Francisco in twenty-three days and twelve hours, the fastest trip on record.

Samuel Thomas, of Pennsylvania, and his friends are backing their faith in Alabama's iron possibilities with an investment of \$1,000,000, and are now at work putting up one furnace, with their plans so arranged that several others can be added.

Sherman & Co., Belfast, Me., manufacturers of axes, are giving their attention now to a special axe, which they describe as hand-hammered, full swedge, painted back and made the old way out of bar steel. It is said to be especially adapted for lumbermen desiring a first-class tool. They also make ship axes and adzes and a variety of narrow axes.

The Roane Iron Company, Chattanooga, Tenn., is building Bessemer steel-rail works to turn out 150 tons a day, and the Old Dominion Iron and Nail Works, of Richmond, has contracted for large Bessemer steel works. Two large pipe-works are to be built at Chattanooga, one capable of turning out 200 tons of iron a day; at Wheeling, Ala., pipe-works will also be built, and at Birmingham one \$200,000 stove company is under way, and one with the same capital is to be planted either there or in Chattanooga.

The Union Switch and Signal Company, Pittsburg, Pa., has purchased the entire stock of the Allegheny Car and Transportation Company, commonly known as the Swissvale Car Works, at a total cost of \$35,000. The property purchased consists of seven and a half acres, containing three one-story brick buildings, and also several engines, boilers and other kinds of machinery. In addition to this the Switch Company also bought five and a half acres of land adjoining the car works at a cost of \$1,500 per acre, making a total of \$8,250. It is intended to erect new works on this unemployed land at once. When this is done 300 men will be employed by the company in addition to those now at work.

During the past nine months there have been added to the number of manufacturing and mining enterprises in the South 42 ice factories, ranging in cost from \$15,000 up to \$150,000 in one case; 56 foundries and machine-shops, many of them of large size, 1 Bessemer steel-rail mill, 16 miscellaneous iron-works, including iron pipe works, bridge and bolt works, &c.; 5 stove foundries, 19 gas-works, 23 electric-light companies, 8 agricultural implement factories, 114 mining and quarrying enterprises, 12 carriage and wagon factories, 9 cotton mills, 19 furniture factories, 21 water-works, 44 tobacco factories, 71 flour-mills, 362 lumber-mills (not counting small portable saw-mills), including saw and planing mills, sash and door factories, stave, handle, shingle, hub and spoke, shuttle block factories, &c., in addition to which there was a large number of miscellaneous enterprises.

New enterprises of gigantic proportions are following one upon the other so rapidly that there seems to be no limit to the possibilities of the South in the development of its enormous mineral wealth. The centre of interest for some time has been in the progress of the iron and steel industries, and in these the activity during the last nine months

has been simply startling. The most extensive enterprise of this kind ever organized in the South has just been formed by a consolidation of the Pratt Coal and Iron Company, including the Alice furnaces and the Linn Iron Works, of Birmingham, with the Tennessee Coal, Iron and Railroad Company, the new corporation having the enormous capital of \$10,000,000. This company will build five large furnaces, on two or three of which work had been commenced prior to the consolidation, and extensive basic steel plant and 1,400 coke ovens, besides opening several new coal mines. With the completion of these furnaces this company will have ten furnaces of a reported aggregate daily capacity of 1,400 tons.

The amount of capital and capital stock represented by new enterprises in the Southern States, the enlargement of old plants and the rebuilding of mills after being burned, for the first nine months of 1886, compares with the figures for the corresponding time of 1885 as follows:

	First Nine Months of—	
	1885.	1886.
Alabama.....	\$8,055,500	\$5,864,000
Arkansas.....	14,830,000	500,000
Florida.....	1,219,000	1,237,000
Georgia.....	2,055,000	2,052,000
Kentucky.....	20,812,700	14,005,000
Louisiana.....	1,055,000	1,055,000
Maryland.....	6,153,000	6,107,800
Mississippi.....	644,000	571,500
North Carolina.....	2,062,200	2,541,000
South Carolina.....	718,000	592,000
Tennessee.....	7,949,000	2,300,000
Texas.....	4,133,000	2,280,000
Virginia.....	6,874,000	2,735,000
West Virginia.....	5,473,800	9,644,000
Total.....	\$81,834,200	\$52,386,300

These figures show an increase for the first nine months of 1886 over the same time in 1885 of \$31,000,500 in capital and capital stock.

William Broadhead & Sons have built another large hosiery mill at Jamestown, N. Y., on a somewhat novel plan. The mill is 250x60 feet, and six stories in height. The first floor, containing the washing and preparation, is driven by an independent engine of 25 horse-power. The knitting frames are on the second and third floors, and are driven by a 35 horse-power engine, located on the second floor. A 45 horse-power engine is on the fourth floor, and drives the carding and spinning rooms on the fourth and fifth floors. The sixth floor finishes up with a 15 horse-power engine for the spinning frames. This company has been making a trial of independent power in this manner in another mill for the past two years, and with results so satisfactory as to lead them to build their new mill entirely on the independent plan. Westinghouse automatic engines are used throughout both mills.

Secretary Follansbee, of the Chamber of Commerce, of Pittsburg, has received a letter from F. A. Richardson, secretary of the Atlanta, Ga., Manufacturers' Association, which reads as follows: "We have organized an association of the manufacturers of Atlanta, with a membership of 150 prominent capitalists. The spirit of manufacturing enterprise in Atlanta is active and promises to show remarkable development within the next year or two. There is a demand here for a glass factory, and I have no doubt that local capital would readily join in such enterprise if it were undertaken by some experienced man. Atlanta manufactures great quantities of patent medicines, and the local demand for bottles is sufficient to support a considerable glass factory. There would be no difficulty about a near and ample supply of sand. Fuel is cheap and is growing cheaper all the time."

The strike of the Western window-glass workers has been settled and work will be resumed in every factory west of the Alleghenies as soon as the furnaces can be heated. The basis of the settlement was last year's wages, the workmen withdrawing their demands for an advance and signing the scale. The factories have been closed since the beginning of the regular vacation last June, and the resumption of operations will furnish employment to over 3,000 men.

The Washington Glass Company is a new concern just organized at Washington, Pa., where works will be erected and operations commenced under the management of Frank Sigel, Jr., of Bridgeport, Ohio. The company expects when in operation to pay out \$4,000 per month for labor.

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RUMORS of war disturb the atmosphere of European politics and that the situation is strained and critical is very apparent. It will not be surprising should peace be broken. Russia means to push her dominion to the Dardanelles and beyond the Indus. Is there anything that can stop her advance?

THE last issue of the *London Chamber of Commerce Journal* contains a special report on commercial museums, by Kenric B. Murray, who takes strong grounds in favor of the establishment of exhibitions of this class in England and urges their initiation, even if on a limited scale. As a part of his report he gives descriptions of the museums which have been inaugurated in Europe, the list embracing about seventy of these enterprises in existence or in progress. The reasons which impel the formation of permanent exhibitions in other countries prevail in the United States and should be as effective in results.

THE centenary anniversary of the adoption of the Constitution of the United States of America will occur two years hence, in 1889. It is proposed to commemorate it with some fitting celebration, with which may be associated the establishment of a permanent exhibition of the three Americas, to be located at Washington, and become the nucleus of an exhibition of wider scope, which is projected to follow three years later. It is probable that the celebration suggested will be carried out, and if it is to serve also for the initiation of an enterprise of value to the commercial and industrial interests of all American countries, active effort should be at once begun to insure success.

THE quadri-centennial of the discovery of America by Christopher Columbus will occur in 1892. In commemoration of this, and to mark the great advance made by the "New World" since that day, it is proposed to hold a "world's exposition" in the United States during that year. This project has begun to assume shape, and the support of the different States of the Union and of representative commercial bodies is being enlisted and has been in a number of instances assured. Should the exhibition be carried out it will doubtless engage the attention and secure the co-operation of all the Americas. We, therefore, invite the consideration of the people of the different countries within the confines of the American continents to this enterprise. The anniversary should be made memorable.

AN English contemporary, discussing the currency question, and resolving that something must be done to establish a "universal medium of exchange," remarks that "every hour lost calls upon us" (the people of the United Kingdom) "for a solution of this great question, which, unsolved, threatens with an overwhelming cataclysm the magnificent edifice of trade and commerce which has been so laboriously erected." While we do not think that this impending catastrophe is entirely due to the complications of finance, and might perhaps be warded off by the very ordinary precaution of taking care of oneself, it is undeniably true that it would be to the benefit of England and to the advantage of the whole world as well if a standard of value for currency should be established throughout the world. Our contemporary lays down the following conditions as indispensable: 1. A medium to serve as the equivalent con-

sideration for things of dissimilar values transferred from hand to hand. 2. That the measure of this medium shall be a unit of value fixed by international law. 3. That it shall be a legal tender for the amount it represents in all of the associated countries. This medium, it is urged, can be found in the form of notes issued under the guaranty of each of the contracting nations and founded upon and represented by an equivalent deposit of gold or of silver. These suggestions seem to us to be quite in the line of the impossible. It is one thing to fix a unit of value and another to maintain it; the legal-tender principle will be easily sustained provided the rest of the program can be carried out; but the question arises as to who or what country is to be the banker, taking the deposits and emitting the legal-tender certificates. Will any one of the European governments surrender its autonomy so far, or should each contracting nation issue certificates founded upon the security of deposits of bullion in its own possession? With one country at liberty to emit currency to be arbitrarily taken at par in another without other security than the quasi deposits in its own vaults, it would not be unreasonable to reject this plan. There are other adverse considerations, but these will suggest themselves. That some uniformity of relation between gold and silver is needed or that any method which shall promise to maintain an equivalent of exchange between different countries is desirable is conceded; but the great difficulty is to unite diverging interests and conflicting policies. This presents a riddle seemingly beyond present solution.

CRITICISM has been made of the fact that the consular reports, as issued by the government, seem to be controlled by a certain policy. In our March issue we expressed the opinion that some occult influence was apparently at work in this direction, and confirmation of this belief is found in recent correspondence from Washington, which asserts that the editing of reports from the consular representatives of the United States is conducted by a "clique of free traders and that every report published is edited in the interest of their theories." It is not one of the functions, nor is it the privilege, of consuls to argue on questions of public economy. They are expected to truthfully report facts, no matter what those facts may disclose, and from these the people are perfectly competent to make their own deductions. But it has seemed to us that the consuls are not always responsible for the promulgation of opinions credited to them, and in more than one instance there has been reasonable ground for the belief that additions have been made to reports without the authority of their writers. The suppression of truth and the distortion of facts may seem to some people reasonable as a measure of partisan policy, but it is unjustifiable in any case, whether designed to sustain free trade beliefs or protective principles. It is suggested that this matter should become the subject of thorough investigation by the United States Senate, a proposition which we heartily endorse. If it should be asked what the evidence to sustain the belief above referred to may be, we may say that it is to be found in a letter of Edward Atkinson, intended for communication to the Secretary of State, and which has probably unexpectedly been made public. Mr. Atkinson, in that letter, asserted the necessity for reorganizing consular reports and for coaching consuls. But it is only fair to say that the statistician of the State Department resents the imputations thus cast, and in a communication to the Assistant Secretary of State says that Mr. Atkinson's letter indicates "that he and his friends assumed the privilege to 'advise' the heads of the several executive departments, and especially of the Department of State, in 'their judgment about men' for appointment to the work of statistical analysis, according to their own notions and for their own aggrandizement, regardless

of facts and consideration of true conditions in comparisons of the economic data of nations. This letter particularly shows a plot to produce an especial effect in the work of the consular service and the prostitution of consular reports to their own partialities and with a view to certain selfish purposes." This confirms the statement that the "attempt" has been made, but it does not nor can it disprove the fact that some of the reports, as printed by the government, are formed on the lines thus indicated.

SOME people who believe that the Mexicans are indifferent to personal rights think that their country is the habitat of brigandage and outlawry. An American, lately returned from Mexico, denies this and denounces the "false impressions" which he says "seem to be almost universally entertained." We are not informed of the opinion of people of other countries on this point, but we are not aware nor can we admit that the people of the United States generally have the belief suggested; but, on the contrary, they have had ample opportunity in social and international intercourse to become convinced to the contrary. The Mexicans are liberty-loving, law-appreciating and courteous, and in their internal administration are probably as intelligent and devoted to law and order as their neighbors.

A RISING ASIATIC SETTLEMENT.

AT a time when all commercial nations are pushing their export trade beyond the seas it is interesting to watch the rapid development of a private settlement in the Sunda Islands founded by a company of London capitalists, but endowed with a charter from the British Government somewhat akin to that of the original East India Company.

British North Borneo is a territory extending on the island of Borneo from the river La Pitong, 5° 6' northern latitude, 115° 33' eastern longitude on the west coast, to the Sibucco River, 4° 5' northern latitude to 117° 30' eastern longitude on the east coast, the length of coast line being 987 miles, and the area 31,106 square miles, including the islands of Gaya, Balam-tanyan, Bangey and Mallewalli. Within this territory there are comprised a few districts the property of native princes; the population of the settlement numbers 150,000, and is composed of various nationalities, chiefly Chinese and Malay traders, and half a dozen native tribes. The company has established sixteen settlements or stations on the west and five on the east coast, including the capital, Sandakan. Order is kept in the interior by paid native chiefs, who are periodically visited by the company's officials, and have at their disposal an armed police. The company derives its income from import and export duties and internal revenue of various kinds. In 1883 the income was \$50,738; in 1884, \$82,448, and in 1885, \$110,452. The expenditures amounted to \$267,531 in 1883; \$196,239 in 1884, and \$209,850 in 1885. There were disbursed for public works and plantation work, furniture and arms in 1883, \$63,375; in the same year specially on plantations, \$10,892; in 1884, \$34,424, and in 1885, \$31,548, and during the three years for procuring Chinese coolies, \$74,630.

The climate is not worse than in other tropical countries, the temperature on the coast ranging between 68° and 92° as extremes; the average rainfall during seven consecutive years was 124.34 inches; the dry season embraces the months of March and May, followed by three months of moderate rainfall; the rainy season begins in October and ends in February, January being the dampest month, but the rain seldom lasts more than two to three days at a time.

There are domestic slaves, but the company tries to liberate them, the slave trade not being tolerated. The government is rapidly erecting the necessary public buildings at the settlements or stations named, and very extensive harbor improvements at

Sandakan, where a long dock has been built enabling vessels to load and discharge in twenty-two feet of water at low tide. High roads, bridges, wells, barracks, a governor's building, hospital, custom-house, market halls, a steam saw-mill and machine-shops are the improvements at and around Sandakan which the company has been engaged in getting ready.

Sandakan's foreign trade has developed as under:

	Imports.	Exports.
1880.....	\$54,733	\$99,912
1881.....	160,658	145,443
1882.....	260,507	133,665
1883.....	428,919	159,127
1884.....	377,885	184,178
1885.....	506,559	263,084

The trade of the entire settlement was:

1884.....	481,413	262,758
1885.....	648,316	401,640

The imports consisted of European, American, Indian and Australian provisions, manufactures, machinery, &c., and the exports of camphor, edible birds'-nests, wax, gum-damar, elephants' tusks, dried fish, gutta-percha, india-rubber, hides, opium, sago, pearls, sharks' fins, rattans, tortoise-shell, tobacco, trepang and timber. Two cargoes of red cedar wood were shipped to Australia last year. Trade between the settlements or stations and the interior is very active and quite important. The license for trading only costs \$2 per annum and five persons are allowed to trade under it. There is no bank yet, but there soon will be. The exchange last year among merchants was 3s. 4½d. to 3s. 7d. per Mexican dollar. There entered the port of Sandakan last year 95 vessels, and there departed as many.

There are seven navigable rivers, of a depth not exceeding nine feet, in the interior, and nine smaller watercourses. Four regular steamers keep up communication with Singapore, and one steamer is on the line to Hong Kong. In future the Hong Kong—Australia steamers are to touch regularly at Sandakan. The distance between Hong Kong and Sandakan is 1,200 miles and requires five days to make; Port Darwin, Australia, 1,600 miles, six days; and Singapore, 1,000 miles, six days.

There are paying gold placer mines in North Borneo on the banks of the Segamah river, where Chinese and Malay mining companies are successfully washing gold; a highway connects these mines with Silam, a port on Darval Bay, a distance of only 13 miles. The forests furnish valuable timber and cabinet woods for export to Hong Kong, Australia and other countries, such as billian or iron wood, and the valuable Serayah-Merah red cedar in inexhaustible amounts. The soil is exuberantly fertile and especially adapted for the culture of tobacco, coffee, pepper, sago, cocoa, cardamoms, nutmegs and sugar. Tobacco is now by far the leading product, in this respect taking the place of sago. There was a stock of \$50,000 worth of tobacco on December 31, 1885, all grown along Sandakan Bay and on Bangey Island. An experimental station and nursery has been opened at Silam, on Darval Bay, where all kinds of tropical products are experimented with for the company's account, so that planters may there inspect the condition of the plants cultivated.

Plantation companies will, during 1886, bring under culture quite an extent of land on the island of Bangey and along Marudu Bay. The company sells valuable land very cheap and on liberal terms, for the encouragement of tobacco and coffee planters, while the Chinese have been induced to go extensively into pepper and gambier planting. Nothing, in fact, is neglected to make a sort of model colony of North Borneo, and as the company is admirably managed, with all of the needed capital at its disposal, and enjoys the powerful protection of England, it is to be foreseen that a great commercial future is before it. To cultivate connections with a part of the world so promising may therefore prove a valuable suggestion to American merchants and manufacturers.

PRICES AT THE OPENING OF THE FALL CAMPAIGN.

THERE has been such general complaint of depression in trade and low prices during the past three years that an advance in some leading staples since the beginning of the year has been generally welcomed. Silk had been long depressed and had declined to a figure almost unprecedentedly low when, in November of last year, the Italian syndicate took the precious fibre in hand and restored confidence in the stability of values. In the spring wool was found to have got into better position, consumption having vastly increased at the expense of cotton, while production had remained stationary. The staple soon advanced between 25 and 30 per cent. The consumption of india rubber was found to have increased so much in this country, without a corresponding increase of the supply, that a considerable appreciation was the immediate consequence; copper advanced from 10 cents to 11½ cents; the world's supply of coffee had been reduced to such a point and doubts were so great about the size of the Brazil crop, beside its being of poor quality, that Rio coffee advanced in eight and a-half months 40 per cent. in the New York market, but subsequently receded a fraction; hops simultaneously attracted attention because of the failure of the crop in the State of New York and improved accordingly; steel and iron appreciated but little.

This is about the sum total of improvement in prices which has occurred, but the advance, although limited to a few articles, has exercised a very favorable influence on the public mind. It has, coinciding as it does with a brisk fall trade on both sides of the Atlantic, restored confidence in the future and imparted a great stimulus to trading. In the United States stocks had run low in the hands of the trade and consumers, because strikes had spoiled the spring campaign. It being seen that many articles were looking up, the buying for the fall and winter supply became more brisk, and from this resulted the satisfactory advices from all parts of the country and in all branches. We subjoin a comparative list of prices of leading articles of merchandise at New York for the dates of 1886 mentioned:

	January 9.	October 9.
Antimony, Cookson's.....	9½	9½
Coal, anthracite.....	\$3.50	\$3.00
Cocoa, Guayaquil.....	16½	14¾
Coffee, fair Rio.....	8¾	11½
Copper, lake.....	11½	11½
Cotton, middling uplands.....	9 3-16	9¾
Flour, extra State.....	3.25	4.00
Wheat.....	95	84
Indian corn.....	51	46
Hemp, manilla.....	8	7¾
" sisal.....	4	5¾
Hides, dry Buenos Ayres.....	22½	20½
Hops, choice State.....	11½	21
India rubber, fine Para.....	61½	80
Iron, pig.....	18.25	18.75
Steel rails.....	34.25	35.00
Lead.....	4¾	4¾
Spirits of turpentine.....	38	37¾
Nitrate of soda.....	2¾	2
Potatoes.....	2.00	1.75
Petroleum, refined.....	7¾	6¾
Lard.....	7	6¾
Butter.....	31	29
Rice.....	5¾	4¾
Spelter.....	4¾	4¾
Sugar, fair refining Cuba.....	5½	4¾
Tin, Straits.....	20¾	21½
Tallow, city.....	4¾	4
Tea, Oolong.....	17	17
Wool.....	21	27

The preceding table shows that, with the exception of hops, nearly all of the leading articles of domestic production instead of advancing weakened as compared with prices ruling early in the year, a fact due to ample crops on this side, and partially to too great eagerness and precipitation in marketing the products. As crops in Europe are, however, partially deficient, especially wheat, an improvement in prices may occur

later on. In the meantime domestic food is cheap among us, and the capabilities of consumption of manufactures, even luxuries, are greater among the masses of the people. If the farmer has to content himself for the time being with moderate but paying prices, other classes of society are able to consume manufactures, &c., on a scale comparatively larger, and as a result industry revives.

Low as prices are, with only few exceptions, the basis on which trade rests among us is all the sounder. At the same time the export trade in the United States to coffee, rubber and wool producing countries has a much better prospect before it than formerly, when those countries were laboring under the disadvantages of very nearly ruinous prices for their chief commodities. This is an item of considerable importance, inasmuch as the United States shipped during the last fiscal year ended June 30 \$132,351,000 worth of domestic goods to non-European countries, against \$135,915,000, worth during the previous twelvemonth, a decrease of \$3,564,000, accounted for by lower prices. The current fiscal year is likely to show results in this respect vastly superior. The general decrease of exports during the period named was \$60,719,000, of which \$53,614,000 occurred in our trade with Great Britain and her colonies, to which the shipments were valued at \$406,876,000, against \$460,490,000 for the preceding fiscal year.

What we have stated and shown by figures goes to prove how important in their bearings are the changes in value which have so far taken place this year, and why the people of the United States have reason for substantial hope of the increase of industrial activity in the near future.

INDIAN MARKETS.

INDIA affords a fair market for many American manufactured products. This assertion is not based upon surmise nor in expectation that our manufacturers who have yet to make a tentative effort in Indian markets will take any particular pains to satisfy themselves of its truth; but we speak with the assurance derived from information given by natives of that country and men who are familiar with the habits and requirements of its people. It is quite probable that the establishment of an American bazar, or sample-room, in a favorable location in India would be productive of commercial results of an unexpectedly favorable character and lead to an interchange of manufactures, which should become profitable to those who might concern themselves in such an undertaking. We have been told that there are many things to which the natives of India are not accustomed which the United States are particularly able to supply, and in certain lines of goods with which those people are familiar, the market can be as easily commanded from New York as from London, with proper effort to that end. There is no actual necessity that English houses should act as middlemen between the manufacturers of this country and the Eastern buyers; but there is a timidity which affects our merchants and renders them disinclined to attempt to subvert this order of doing business. An Indian merchant cannot buy cotton goods from American houses direct, nor can he get quotations; but is referred to some London agency, or to some foreign representative who makes a price much in advance of that which would be considered a good profit at first hands. In our last issue we referred to a communication from Consul-General Cardwell, at Cairo, who declared: "It is folly to say that cheap European products exclude the more expensive American," and who is confident that effort only is needed to market our goods in the Orient. His remark is applicable to all Eastern countries, and to none more aptly than India. Direct communication will be a valuable factor in extending this trade and in reducing the cost of American goods to Eastern buyers. Some enterprise in this direction ought to be developed.

U. S. Ministers and Consuls.

Sugar Taxation in Germany.

CONSUL-GENERAL RAINE.

THE new sugar taxation law lately passed by the German Reichstag has been officially promulgated.

From August 1 of this year the beet-sugar tax will be 1 mark 70 pfennig per 100 kilogs. of raw beets, to be used for sugar. The export reimbursement will be, for 100 kilogs., as follows: (a) Raw sugar of at least 90 per cent. polarization, and refined of between 90 and 98 per cent., from August 1, 1886, to September 30, 1887, 18 marks and 17.25 marks afterward; (b) for candies and for sugar in white, full, hard loaves, blocks, plates or bars, or pounded in the presence of the tax authorities, also other sugar of at least 99½ per cent. polarization to be fixed by the Bundesrath (Federal Council), from August 1, 1886, to October 1, 1887, 22.20 marks and 21.50 marks afterward; (c) for all other hard sugars and all white dry sugars (not containing over 1 per cent. of water) in crystal, crumb or flour form, of at least 98 per cent. polarization, so far as they do not come under b, August 1, 1886, to October 31, 1887, 20.80 marks and 20.15 marks afterward.

Credit may be allowed to beet-sugar manufacturers in respect of taxes to the extent of six months.

The Best Varieties of Flax.

CONSUL WILLIAMS.

THIS article is written to assist the practical agriculturist and merchants and manufacturers in discriminating among the different varieties of flax, and therefore the inquiry will not be pressed into the origin and technical varieties of botanists, which number something like a hundred. It is the ordinary flax, such as is the most remunerative, of which I will undertake to describe the culture and treatment.

This plant has a hollow stalk, straight and cylindrical, attains a height of forty inches, but sometimes does not exceed two feet. The blossoms have five petals, blue, of a violet tinge, the leaves narrow, branching, and alternately distributed along the stalk. The berry, ripe and well formed, has the shape of a round capsule, running to a point at the top and divided into five lobes, these being subdivided into ten little cells, each one of which contains a brown grain or seed, bright and generally long and flat. This is a description of the variety of flax which is the only sort which can be profitably cultivated in France. The different subvarieties of the flax raised in France can be brought under four heads, and differ but slightly from one another. They may thus be briefly described:

(1) Common flax from seed many times reproduced in the same locality. This flax branches out and attains a height of only 23 to 25 inches; besides, the thread made from it is only middling.

(2) The flax known as Riga, the seed of which is imported from Russia, branches out less, and attains, under favorable atmospheric conditions, a height of more than forty inches, and produces a fine silky thread. This flax is especially cultivated in Flanders.

(3) Flax with white blossoms is from seed brought from Russia. This plant is more hardy, its thread strong and of good quality, but the stalk does not attain a height of more than twenty-five inches.

(4) A flax which is a seedling from that grown in Flanders by the seeds known as extra Puych, or of Puych-Krown. The thread from this flax is fine and more silky than that of Riga.

Regarding winter flax of Spanish origin, it furnishes only a rough, coarse thread, and its cultivation is impracticable in France and only thrives in Spain.

Without entering into the chemical analysis of flax it may be stated that the result in all cases has demonstrated that flax is rich in alkalies based on soda, in lime and in phosphoric acid, differing, however, according to the various localities where it is raised.

The result of analysis shows that the flax of the North and Flanders is rich in potash, nearly 30 per cent.; phosphoric acid, 12 per cent.; carbonic acid, 26 per cent., and lime, 17 per cent.

The flax of the Netherlands gives, potash, 18 per cent.; soda, 19 per cent.; phosphoric acid, 10 per cent.; carbonic acid, 14 per cent., and lime, 19 per cent. The flax of England and Ireland contains, potash,

7 per cent.; soda, 6 per cent.; lime, 22 per cent., and carbonic acid, 1 per cent.

The best flax, that of France, Flanders and Belgium, is rich in potash and phosphoric and carbonic acids; lime prevails in Dutch and English flax. And, again, the Flemish flax has scarcely a trace of silex, while the Dutch flax shows 4 to 6 per cent. and that raised in Scotland from 15 to 25 per cent. The Flemish flax contains 9 per cent. of chlorate of soda, while the others only show 3 to 5 per cent.

The constituents of flax indicate the absolute necessity of a judicious rotation of crops upon land where it is cultivated, which can thus enable it to recuperate; in many localities as many as from four to seven other crops are allowed to intervene.

Flower-Farming in Southern France.

CONSUL MASON.

FOR nearly a century the culture of flowers on a commercial scale and the manufacture of perfumes and essences have formed a special and lucrative industry in Southern France. The principal mart of this dainty manufacture is at Grasse, in the department of the Maritime Alps, but it is also conducted on a more or less extensive scale at Sommières, Nîmes, Lyons, Seillans and other points in the consular district of Marseilles. A considerable portion of the product is exported to the United States, and as this export is steadily increasing it may be of interest to examine the conditions of soil, climate, &c., under which flower-culture has flourished in this country, and to inquire whether the same industry might not be successfully established in certain portions of the United States. It is stated by perfumers here that the manufacture of perfumes from orange-flowers has already been attempted in Florida and California, but that the enterprise has failed of complete success because these essays were made with flowers of the edible orange, grown upon low lands—conditions which would entail failure even in France, where the bitter and non-edible bigardier or the bergamot, grown in locations more or less elevated, is universally used for the production of perfume.

The subject divides itself naturally into two topics: First, the culture of the flowers and blossoms; second, the manufacture therefrom of the pomades, essences and perfumed waters of commerce.

I.—FLOWER-FARMING IN PROVENCE.

The kinds of flowers principally grown and their season of harvest are the violet, jonquil, and mignonette, which are usually gathered in February, March, and April, although in mild, moist winters the violets begin as early as December; roses and orange-blossoms, with thyme and rosemary, in May and June; jasmines and tuberose in July and August; lavender and spikenard in September; and the acacia in October and November. The harvest of flowers covers therefore about three-fourths of the year, but the season of greatest activity is May and June, when the roses and orange-blossoms are gathered. Thyme, rosemary, and lavender are among the minor products, grown principally by rural farmers of the grape and olive, who have at home the simple apparatus required to distill the flowers and produce a more or less inferior class of essences, which are used to dilute and adulterate the superior essences produced at the larger establishments in towns and villages.

A TYPICAL FARM.

The conditions of industrial success in flower-growing can be best studied by a specific example, and for this purpose we select the plantation of Madame de Rostaing, at Seillans, in the department of Var. It includes about 23 acres, located on the southern slope of the Maritime foot-hills, about 2,000 feet above the level of the Mediterranean, and perhaps 20 miles from the coast. The calcareous soil was naturally thin and poor, and the olive trees, which had occupied the ground for a century or more, prior to 1881, yielded but scanty and unsatisfactory returns. The slope of the surface was so steep that the waters of a spring, which flows from the rocks above the tract, could be but imperfectly utilized for irrigation, and the land was regarded practically worthless. In 1881 the proprietress caused the olive trees to be removed and the land prepared for flower-culture. First, the ground was dug up to a depth of 4 feet, the larger stones removed and built into sustaining walls for the terraces into which the surface was divided and leveled. Along the upper margin of each terrace a shallow ditch was cut, connecting with transverse channels, which supply the spring-water for irrigation. The abruptness of the slope will be indicated by the fact

that, on the tract of 18 acres, the terrace walls required to produce a series of level or gently sloping surfaces are 2,166 yards in length. Thus terraced the tract yielded 17½ acres of prepared ground for planting. In the autumn of 1881, 45,000 tufts of violet and 140,000 roots of the white jasmine were planted. The following spring the remainder of the ground was planted with roses, geraniums, tuberose and jonquils and a laboratory erected for the manufacture of perfumes. The location proved to have been well chosen; the flower plants grew vigorously and strong, and in 1885, the fourth year after planting, the flower-farm of Seillans, which had previously yielded a rental of \$115 a year, produced according to the statement of the proprietress perfumes valued at \$43,154, and giving a net profit of \$7,767.86.

The difficult nature of the ground had made its preparation unusually laborious and expensive, but in the foregoing balance-sheet for 1885 interest on the entire investment is included in the expense account, so that the profits as stated purport to be clear and legitimate. Of course the plants and shrubs at Seillans have not yet reached their full productive capacity, but the results of the fourth year illustrate sufficiently how lucrative flower-farming may become in favorable locations and under good management.

ESSENTIAL CONDITIONS.

From observations at Seillans and in the neighborhood of Grasse, where perfume-flower growing is the leading branch of agriculture, the essential conditions appear to be:

(1) An altitude of from 500 to 2,000 feet. Flowers grown on such elevated locations are said to be far more rich in perfume than similar varieties which bloom in valleys and lowlands.

(2) A soil rich in calcareous elements.

(3) A situation sheltered from cold northern winds, and not subject to the white frosts which, in spring and autumn, affect the damp lowlands.

(4) In countries like Southern France, where the rainfall is always scanty and often wanting entirely from May until September, irrigation is essential to the culture of flowers as well as every other crop; but it would seem that in the vast expanse of the United States, between the thirtieth and fortieth parallels of latitude, there might be found locations which combine all the requisite conditions of soil and exposure with sufficient humidity to secure natural and prolific growth.

There remains, finally, the somewhat vague and intangible question as to how far usage and experience are really essential to success in flower-growing and perfume manufacture. The people of Southern France are prone to believe that certain things peculiar to this country can never be successfully produced elsewhere. The gourmand of Marseilles will tell you that *bouille-abaisse*, the famous "plat" of fish and toast flavored with saffron, can never be well made outside of Marseilles; the confectioners of Provence have no fear that their glazed and crystallized fruits can ever be successfully imitated beyond the frontiers of France; and, similarly, the perfume-growers and distillers along this coast attribute their success not less to the peculiar climate of Provence than to their minute knowledge of every detail of the business, a knowledge acquired by more than a century of experience and transmitted from generation to generation of these simple, industrious people. Switzerland used to cherish similar ideas about watchmaking and the embroidery manufacture, but both have been developed with entire success in other countries, and it is impossible to see in the perfume manufacture any art so obscure or difficult that it may not be learned and practised successfully in any part of the United States which offers the requisite conditions of climate.

One essential principle in perfume culture is that all fancy and "improved" varieties of flowers are discarded, and the natural, simple, old-fashioned kinds are exclusively grown. The roses on the slopes of Seillans are the common pink ones that grow under farm-house windows throughout the United States. The single wild violet is preferred to all the larger artificially developed varieties, and if there is a "double" tuberose on the place I failed to notice it.

Only the white jasmine is used, the yellow and less fragrant variety seeming to be either discarded or unknown. Jasmine plants are set in rows, about ten inches apart, and are closely pruned. Roses are grown on the lower terraces, and are likewise cut low, and the ground between the plants heavily manured. After the roses have been gathered, the stem is cut to within a few inches of the ground, so as to conserve for next season the entire vigor of the plant. During the harvest

season traders or middlemen go through the country every day with wagons, collecting flowers from the farms, for which they pay prices varying according to the extent of the crop and demands of the market. Their fragrant load is hurried to the nearest manufacturer and delivered while the flowers are still fresh and crisp. The flowers should be gathered in the morning as soon as possible after the dews of the preceding night have disappeared.

II.—THE MANUFACTURE OF PERFUMES.

This includes the making of "pomades" and oils by the process of absorption, and of essences and essential oils by distillation. Every complete establishment is equipped with apparatus for all these processes. Pomades are the commercial vehicles for absorbing and transporting the perfumes of the jonquil, tuberose, jasmine and some other species of flowers. A square frame, or *chassis*, of whitewood, about twenty by thirty inches in size, is set with a pane of strong plate-glass. On either side of the glass is spread a thin, even layer of grease—two parts lard to one of tallow—which has been purified and refined by previous boiling and straining. Thus prepared, the frames are piled up in ranks six or seven feet high to await the season of each special flower. When the blossoms arrive the petals are picked from the stem (the pistils and stamens being discarded), and laid so as to cover the grease in each frame. These being again piled so as to rest upon their wooden edges, which fit closely together, there is formed a series of tight chambers, the floors and ceilings of which are of grease exposed to the perfume of the flower leaves within. The grease absorbs the perfume, the spent flowers are removed daily and fresh ones supplied, and this process goes on from two to four or five months, according to the desired strength of the pomade, which, when sufficiently charged with perfume, is taken from the glass with a wide thin spatula and packed in tin cans or "stagnons" for export. By these methods the delicate odors of flowers are extracted and retained for transport to distant markets, where, being treated with alcohol, they yield their perfume to that stronger vehicle and produce the floral waters and extracts of commerce. Coarse pomades are made by boiling the flowers in the grease and subjecting the residue to pressure. The spent pomades are used for toilet purposes and in the manufacture of fine soaps.

OILS AND ESSENCES.

The process of preparing perfumed oils involves the same principle, except that, instead of solid grease, superfine olive-oil is used. With this oil pieces of coarse cotton fabric are saturated, which are then spread upon wire netting framed in wooden chases about 3 by 4 feet in size. The flowers are spread upon saturated cloths, and the frames piled one upon another, so that the perfume of the flowers is absorbed, as in the previous process.

Essences and "flower waters" are produced by ordinary distillation, in which the flowers are boiled with water in large alembics; the vapor carries off the perfume and is condensed in adjoining copper tanks, like ordinary spirits. Some of the retorts used for this purpose are of sufficient size to receive at once half a ton of fresh flowers, with the requisite water for their distillation. When "flower waters" are to be produced, alcohol is used in the distilling tank to receive the perfumes. By skillful combinations of the perfumes of different flowers, sometimes with the addition of chemicals, a large variety of handkerchief extracts, such as "Patchouly," "Jockey Club," "West End," &c., are produced at the original laboratory.

All these details of manufacture require careful and skillful manipulation, but there would seem to be no part of the process which cannot be promptly mastered by any good chemist with sufficient enterprise to import a few experienced French operatives. A mild, uniform temperature is secured by the heavy stone buildings in which the process of absorption is conducted, and scrupulous cleanliness is required at every stage of the manufacture. After removing the pomades from the frames the glass is removed and cleansed with alkalies and the frames scraped to remove every vestige of grease, which, by becoming rancid, might spoil the product of the next operation.

The work of the manufactories is largely done by women, who earn from twenty to twenty-five cents in a day's labor of ten hours. During the busy season of roses and orange-blossoms they earn half as much more by working until midnight or later. Laborers on the flower farms earn the modest wages which pertain to all kinds of agricultural labor in this country, for there is nothing in the culture of flowers that is

beyond the skill and understanding of an ordinary farm-hand, when directed by an intelligent and experienced overseer. As the wealth and popular taste for luxuries in the United States have continued to increase, our country has absorbed a constantly-increasing proportion of the perfume product of Southern France. If the low wages that are now paid for the labor of girls and women in many forms of manufacture in American cities could be utilized in districts adapted to flower-growing, it would seem that the essential conditions for transplanting that fragrant and lucrative industry to the Western Hemisphere would be practically complete.

German Trade Competition with England and France.

CONSUL GOODWIN.

THE first steamer of the new subsidized German line sailed from Bremerhaven on the 30th of June, bound for Shanghai and Hong Kong. Since that date, on the 14th of July, a second ship has been dispatched, this one to Melbourne and other Australian ports. The projectors of this German line were engaged a long time in maturing their plans, and they finally arranged a very ingenious timetable, providing for trips of the German steamers, carrying passengers, mail and freight, to be made at intervals of fourteen days, and between the trips of the existing English and French lines. The pioneer of the line, which, as before mentioned, sailed from Bremerhaven June 30, was expected to get away from Suez July 17, and the first Australian steamer, which left Bremen July 14, is booked to sail hence from Suez August 2. This arrangement admits of a connection at Suez with steamers from Trieste, Brindisi and Alexandria, and arrangements have already been made for this connection, the steamers to leave Trieste every second Wednesday and Brindisi every second Friday.

The German line has not only the advantage of running its ships at dates between those of its two great competitors, and of having new and important connections, but it has put into service large and powerful ships that are calculated to make quicker runs than have yet been made. For instance, the English ships make the trip from Suez to Hong Kong in twenty-eight and one-quarter days, the French in twenty-eight days, while the German ships are confidently expected and billed to make it in twenty-four and one-half days. The English ships now make the run from Suez to Melbourne in thirty-three days, the French in thirty-five days and the German ships are to do it in thirty and one-quarter days. In correspondence with the main lines, steamers have been provided to connect at Hong Kong with Yokohama, Hiogo, Nagasaki and other Japanese ports, and at Sydney for the Tonga and Samoan Islands, and probably, later on, for New Guinea. The ships on these branch lines are to be especially adapted to this work, capable of quick time and sure connections. On the return the German ships are booked to sail from Shanghai and Hong Kong one day later than the French boats and to arrive at Suez at least two days ahead of them; the German ships will leave Sydney one day later and Melbourne two days earlier than the English ships, and will reach Suez fully five days in advance of them. Not only is it promised that the German ships shall make quicker runs than have ever been made by their rivals, but the rates for passage have been placed at lower figures.

TRADE WITH THE EAST.

It is not strange that England and France, particularly the former, look with jealous eyes upon this bold and well-considered move on the part of Germany to secure a share of the trade with China, Japan and Australia. I have at hand no fresh statistics of England's trade with the former countries, but, as everybody knows, it is enormous and profitable. The Germans are just now very active and very shrewd in their efforts to undermine English trade and influence in China.

Scores of contracts of recent date have already been given to Germans by the Chinese, the most notable being the contracts to build large iron-clads for the Chinese navy. These latter were secured through the persistent efforts of the German consuls in China, and as the result of instructions from their government. They were contracts such as heretofore have fallen to England's lot almost without the slightest competition. German capitalists, with practically unlimited resources, are now in China negotiating for the building of the railroads projected in various parts of the Empire. In the expectation of building these railroads and equipping them from German work-

shops, and on account of the establishment of the new line of steamships to reach every important shipping point in Eastern Asia and Australia, Germany is now in high feather. England and France will do well to keep a sharp eye on Germany, as the latter is determined to eventually distance them both in the volume of trade with China. The government, the societies of trade and commerce, and individual workers are co-operating to that common end.

THE AUSTRALIAN TRADE.

Germany is also putting forth special efforts to get a stronger foothold in the Australias. It already has a large trade with these colonies, but its cup of ambition is not filled. American trade with Australia is reported to be very dull and is likely to remain so as long as we maintain the heavy duty on wool. England still does the great bulk of the business with Australia, about twenty times as much as is done by the United States. Only mixed cargoes, consisting of such articles as can be obtained at better advantage in the United States than in England, now go from the former to Australia, and the ships carrying those cargoes, having discharged at Sydney or Melbourne, reload for England more frequently than for the United States. The importance of Great Britain's trade with the Australian colonies cannot be overestimated, and at first thought the idea that Germany may reduce it to any considerable extent may seem absurd.

Her exports to and her imports from Australia during the years 1884 and 1885 were as follows: Exports, 1884, £23,875,406; 1885, £25,147,178; Imports, 1884, £28,379,314; 1885, £26,115,834.

Statistics covering the first month of the present year are also published, and they show exports to the colonies amounting to £1,450,600, a slight increase over the same month of last year; in the same month the imports from the colonies fell off almost £500,000. The chief articles of export are woolen and cotton goods, iron, machinery, thread, wire, clothing, hardware, leather, boots and shoes, beer and paper; the leading articles of import are wool, wheat, meats, live-stock, copper, tin and tallow. In contesting for the Australian trade Germany has not acted hastily nor unadvisedly, but after careful preparation, as is the case with her efforts to gain trade and influence in China, Japan and the islands round about them.

The French trade journals are awakening to the significance of the German moves, and are vigorously urging, as a first step to offset them, that a decided improvement be made in the steamship service now existing between France and Eastern Asia and Australia. Faster ships, lower rates for freight and passengers, and other changes are called for.

Trade of the United States with Belgium.

CONSUL STEUART.

TABLES of statistics issued from the Ministry of Finance for Belgium, giving the commercial movement of the kingdom with foreign countries for the month of May, 1886, and also a comparative statement of the same for the first five months of the years 1884, 1885 and 1886 show a decrease of 14 per cent. in the importations for the month of May of the present year when compared with those for the same period of 1885, and a decrease of 9 per cent. in the first five months. The exports for the month of May, 1886, were 1 per cent. in excess of those for the same month of 1885, while the aggregate exports for the first five months of 1886 were about the same as those for the same period of the preceding year. In a number of imported articles of commerce the United States are directly interested, and the most important of these is wheat. The aggregate importation from all countries into Belgium, for the five months, of this article amounted to 215,288 tons, against 294,300 tons in 1885, which is a decrease for the present year of 79,012 tons, the importations from the United States having fallen off 23 per cent. and those from Russia even 70 per cent.

There has been a decrease of 5,029 tons in the total importation of rye, the aggregate receipts for the five months in 1886 amounting to 22,873 tons. The United States brought only 2½ per cent., against 5¼ per cent. in 1885. The five months of this year and of 1885, when compared with the same period of 1884, show a very large decrease, 44 per cent. of the total importation having then come from the United States.

The total receipts of corn, oats and buckwheat amounted to 67,780 tons, against 86,793 tons in 1885, a decrease of about 22 per cent. for

1886, while the importation of this merchandise from the United States has increased from $6\frac{1}{2}$ per cent. in 1884 to $28\frac{1}{2}$ per cent. in 1885, and to $36\frac{1}{2}$ per cent. for the present year. The total importation of flour, bran and meal has decreased from 16,656 tons in 1885 to 13,127 tons, the United States having also had their part in this decrease; the falling off has been from $20\frac{1}{2}$ per cent. in 1885 to only 6 per cent. in 1886.

The importations of meat aggregated 5,021 tons, showing only a slight decrease when compared with 1885. Sixty-four per cent. of the total quantity was furnished from the United States. Nine thousand nine hundred and two tons of lard, about 33 per cent. less than in 1885, were received. This decrease is due to the falling off of the importation from the United States, there having been 7,315 tons in 1885, against only 4,964 tons in 1886.

Of starch 1,597 tons were imported, an increase of 126 tons over 1885. The increase in the importation of this article from the United States has been particularly large, having attained 128 tons in 1886, against 67 tons in 1885.

In the total importation of oil-seed, amounting to 40,651 tons, there has been a decrease, as compared with 1885, of 25 per cent., while in the importation from the United States a large increase is marked—3,288 tons in 1886, against 1,862 tons in 1885, and 109 tons in 1884. There has been a decrease in the importation from British India and South America.

The total receipts of petroleum for the first five months of the present year aggregated 64,629 tons, against 41,287 tons for the corresponding period of 1885, and 41,758 tons for the five months of 1884. While only a slight difference is marked, as regards the importation of 1884 and 1885, an increase of over 50 per cent. is shown for 1886. Of the entire importation of the present year 88 per cent. was from the United States and 11 per cent. from Turkey. This is a large increase for Turkey when compared with 1884, when only sixty tons, and with 1885, when about 1 per cent. was received from there, and 98 per cent. from America.

The total importations of rosin and bitumen were 37,321 tons, about 100 tons less than in 1885, while the decrease in the receipts from the United States has been more marked, they having been 13 per cent. last year, while they amounted to only $8\frac{1}{2}$ per cent. this year.

Of leaf tobacco 3,380 tons have been received in 1886, which is an increase over 1885 of 1,085 tons. The United States furnished 50 per cent. of the total importation in 1886 and 36 per cent. in 1885. Of the cigars imported—23 tons—5.8 came from the United States, 4.9 from Holland, 3.8 from France, 3.5 from England and 3.4 from Germany.

The importations of syrup and molasses show a large falling off, there having been only 5,481 tons, against 10,956 tons in 1885, the decrease in the receipts from the United States having been equally large proportionally, from 3,499 tons in 1885 to 1,220 tons in 1886. The importation from Holland has also decreased from 4,151 tons in 1885 to 860 tons in 1886.

In the importation of raw cotton there has been an increase over 1885 of 60 per cent., there having been 10,435 tons this year. The statistics do not specify the different countries of origin or shipment, but undoubtedly a large part of the importation was from the United States.

Salts of soda were received to the amount of 6,229 tons, against 6,818 tons in 1885. The United States sent only 25 tons in 1886 and 184 tons in 1885; Germany, 2,106 tons; Holland, 1,844 tons, and Russia 1,063 tons this year.

The importation of wood for building purposes amounted to 123,247 cubic metres, which is a decrease as compared with 1885 of 42,981 cubic metres. The decrease in the importation from the United States has been particularly large, only 7,355 cubic metres having been received in 1886, against 10,768 in 1885.

Arms were brought into Belgium to the value of 810,213 frs., which is an increase over the five months of the preceding year of 324,000 frs., or 45 per cent. The value of arms received from the United States was 23,010 frs., against 19,539 frs. in 1885, an increase of 18 per cent. for the present year. France, England, and Germany furnished about 75 per cent. of the entire importation, in nearly equal parts.

The following kinds of fruit were imported into Belgium: Almonds,

112 tons in 1886 against 134 tons in 1885; lemons and oranges, 2,759 tons, against 2,532 tons; figs, 1,158 tons, against 800 tons; prunes, 481, against 545 tons; currants, 599, against 781 tons; other dried fruit, 289 tons, against 387 tons; only in these last-named the United States were interested, having brought 62 tons in 1886, which is a remarkable falling off as compared with the corresponding five months of 1885, when 161 tons were received.

American Apples in Germany.

COMMERCIAL AGENT SMITH.

THE new American method of drying fruit, which gives such satisfactory results, especially in apples, is susceptible of being developed into an important industry.

Nowadays in this neighborhood—and I suppose the same is true of all Germany—if you want dried apples, the American fruit is usually the first offered to you, while a long string of adjectives are thrown off at you in praise of it. These apples are to be met with almost everywhere, and are preferred to all others, on account of the excellence with which they are dried and for their cheapness. For about three years past—maybe four—American dried apples have been in the German market, and have met with great success, forcing the native product almost entirely out of its own domain. And it is really a remarkable accomplishment that the Americans have been able to place upon the market a dried fruit which almost vies in freshness and flavor with the fresh fruit, and yet can be kept for long periods where that perishes.

I believe that both for our fruit-evaporators as well as for the dried fruit itself this country would afford a fine market if properly worked up. The German fruit-driers are of a very inferior character, and the Germans are very far behind the Americans and French in drying fruit. The German cultivators of fruit now find, when they want to dispose of their dried fruit in the markets of neighboring towns, that it is a much easier matter to produce than to sell; and the man who has German dried fruit to vend goes almost in vain upon his journeyings with his pack of samples upon his shoulders, and learns when he seeks to sell his goods that although his product is regarded as being as good, if not better, in the natural quality of the fruit than the foreign article, yet is so inferior in the packing, appearance, and general excellence of the drying that very few persons want it, and, moreover, discovers to his amazement how much finer and cheaper, in apples for instance, the American fruit is to his own. With pears he meets with more success, and finds them preferred to the French and Italian; but it is always easier to sell dried apples than dried pears, and it is said that twenty centners of apples can be sold to one of pears. The best dried plums come from France.

The consumption of good dried fruit with the skin off is slight in this country—may be owing to the inferiority of the drying. The most of families do not like it, and it is seldom seen upon the tables of hotels and restaurants. To find a market it must be sold very cheap, and in this particular the Americans ought to be able to meet the demand.

American dried apples, I am told, sell 25 to 40 per cent. cheaper than the German.

Like everything else, the Germans are doing their best, I understand, to imitate and counterfeit the fruit-drying machines which our people have put upon the market, and it behooves the American manufacturers to see to it that the fair field which is open to them here is not lost beyond recovery.

COST OF PRODUCTION IN MEXICO.—Aside from the fact that the Mexicans refuse to give any information regarding their business foreigners who are engaged in business in Mexico, "except in a few instances," absolutely refuse to allow the least information regarding their business to become known, and it is impossible to gather any reliable details concerning either the manufacture of cotton goods or to obtain any data regarding the cost of production as compared with the price of labor. This is extremely difficult even in the case of agricultural productions, as not one Mexican in ten can give the least idea what a certain amount of an article he brings into market for sale costs him to produce. He will tell you that a bushel of corn cost him so much to raise it, and will then sell his whole crop for 75 per cent. of the amount he solemnly assures you he paid to raise it, and it is the same with everything else.—*Consul Campbell.*

CONSULAR NOTES.**Flax Production.**

The growth and treatment of flax are the subject of a lengthy but interesting report from Consul Williams, of Rouen. The consul gives figures of the crop of flax in the principal countries of production. Russia holds the first rank in flax production, furnishing two-thirds of the total amount produced, while next to Italy it yields the smallest proportion of thread to the raw material. If that large country cultivated, rotted and stripped its flax in a proper manner, it would produce a third more than it now does, which would be equal to a pecuniary advantage of 100,000,000 francs per annum. Independent of this large crop of flax, Russia sowed in 1885 more than 200,000 hectares of hemp. Germany ranks highest in net returns; Austria has passable results; Italy is absolutely inferior. France holds only the fifth rank, while she and Belgium have the land, soil and climate best adapted to the favorable growth of flax, and in many places the best facilities for rotting, and in certain parts of the country, mostly in the north, the best methods of cultivation.

Wool Waste.

The utilization of wool waste has occupied much attention in manufacturing and chemical experiment. Consul Williams says that some of the wool-carders at Roubaix extract potash from the grease of wool, and utilize the balance for a soap for their own use. They employ various processes to effect this, but are so reticent on the subject that neither the process nor the profit can be ascertained. This potash sells for 39 francs per 100 kilograms, loaded on the wagons.

Paintings on Porcelain.

The European producers of paintings on porcelain are much aggrieved because of the tariff classification of their products as decorated china, which subjects them to 60 per cent. duty. Consul Bischoff sympathizes with them, presenting the views of these foreign decorators. It is claimed that nothing in this line can be called a work of art which costs less than \$12.

Experiments on Ensilage.

An exhaustive series of experiments in reference to ensilage have been carried on by one of the English agricultural societies. Six silos were built. Consul Lathrop gives the details of their construction, method of filling and the nature of the ensilage expected to be made in each instance, &c. The conclusions reached were as follows: "The general result of these experiments appears to be that there is a considerable loss of nutritive material, especially of the non-nitrogenous, or fat-forming constituents, in converting grass into ensilage; and that the albumenoid, or flesh-forming constituents, are more reduced by the conversion into sour than into sweet ensilage. This loss is not compensated by the acids produced by the fermentation, nor have they any claim to be regarded as foods; however, they may act as stimulants to digestion in causing woody fibre to be more readily assimilated by the animal organism. On the other hand, the conversion of grass into hay is accompanied by little loss of nutritive material, although the loss of water may tend to render the food less easily digested."

Trinidad Lime Juice.

The lime tree grows wild in Trinidad. Lime trees grow and bear in any soil, but the better the soil the larger the fruit. They are planted from 12 to 16 feet apart. When young they have to be pruned and trained to assume the shape of an umbrella. When about to form a lime plantation it is best to form a nursery a year beforehand and then to transplant the young trees, pulling them up from the soil, cutting off the end of the pivot root, and then placing them in the ground where they are to grow. A lime tree yields on an average 10 gallons of juice. The fruit is allowed to drop off and is then collected and conveyed to the works, where the limes are passed first through the cutter, which rips them open, and then through rollers and the press to separate the juice. These cutters, rollers and press are constructed in a very simple and primitive way and admit of very great improvement. The juice is then exported either in this condition or it is condensed by boiling. A barrel of limes yields 7 gallons of juice. The cost of lime juice, including packages, should not exceed 12 cents per

gallon; lime juice is generally sold at a price varying from 36 cents to 60 cents per gallon. The essential oil of limes is extracted from the rind before crushing by grating on rasps with the hands; the oil thus extracted is called the hand-made oil, which is superior to that which is obtained from the crushed limes and by distillation. A hundred gallons of juice will yield by distillation about three quarts of the essential oil.—*Consul Fowler.*

Tenure of Land in Mexico.

General titles to land originated with the Spanish crown, and have been handed down from generation to generation. Ownership of large tracts of land and of the immense haciendas is absolute, and held under deeds from the government or previous owners. The smaller farmer and land-owner in this vicinity, instead of holding deeds for the land he occupies, owns a right to so many minutes, hours or days of water per month—that is, he is entitled to draw from the main irrigation ditch which skirts or runs through his land water for so long a time each month, and to cultivate so much land as this water will irrigate. In the various community properties in this State the foundation of the title to land in whole towns is vested in the water right, and so scattered have become the heirs to this right that the result is often the loss of any power of sale by those actually remaining in possession. In many communities there are persons whose only claim to use the general grazing lands belonging to the community, and to cut wood upon the same, is the ownership of ten seconds of water per month, and yet even this small right entitles them to hold for their exclusive use such land as they may have under fence, and to live on community land so long as they can build themselves a house and make their ten seconds of water answer their purpose. In such communities agriculture is paralyzed, and, as the only person affected by this pernicious system is the small farmer, the very foundation of progressive cultivation of land is undermined wherever it exists.—*Consul Campbell.*

Agricultural Implements in Mexico.

Among the more enlightened and progressive Mexicans modern agricultural implements are used to some extent, and American mowing, reaping, and thrashing machines are slowly coming into use. American plows are also common enough, but of a small and entirely unfit pattern for the use to which they are put. Following the idea that the wooden plow is a necessity, the Mexican farmer, if he buys an American plow at all, insists upon getting so small a one that the result of its use is but little more effective than would follow that of an old-fashioned iron-toothed harrow. Such innovations are rare, however, and by ninety-nine out of one hundred farmers the only tools used are the plow made from a forked stick, the hoe weighing often from three to five pounds, and the saw-toothed sickle. With these three tools, year in and year out, Mexican crops are raised and gathered.—*Consul Campbell.*

Tools in Yucatan.

Hoes, shovels, picks, crowbars and a kind of light axe are among the well-known tools in ordinary use. The machete and corba are large, heavy knives of various shapes designed for general cutting work around the hacienda. In the hands of a native a machete will do wonderful work, whether it be in a cutting affray, performing a surgical operation upon a diseased mule or steer, or clearing a path through the otherwise impenetrable jungles. The agricultural implement most commonly in the hands of the ordinary worker of the soil is a branch broken from the handiest tree. He will choose a crooked stick in preference to a hoe. I have noticed the native laborers upon a Yucatan railroad toss aside the shovel and take the pointed stick immediately after the overseer passed. Maize, or Indian corn, is planted by the aid of a staff shod with an iron point. This is plunged into the mixed earth and stones and then withdrawn, leaving a cavity into which the seed-corns are thrown. A movement of the naked foot covers the grain, and the planting is finished.—*Consul Thompson.*

Sugar Machinery in Lower California.

Two steam mills have been erected and are in use in the Todos Santos district, which were manufactured in the San Francisco, Cal., foundries; and in the districts of San José and Santiago, American machinery is also in use for sugar-milling; manufacturers and pat-

entees of New York and Philadelphia. Notwithstanding the different advantages offered by the late improvements in this kind of machinery, &c., a great many planters are still working their sugar-cane with the old system of wooden mills, with wooden cylinders moved by horse-power. Lack of capital is undoubtedly the cause that prevents farmers in this country utilizing the new improvements offered in many of their branches of agriculture.—*Consul Viosca.*

Silk Industry in Mexico.

It is believed that in the course of the next five years more silk will be manufactured in Mexico than can be consumed by her people, although at present the industry is in its infancy, comparatively speaking. There are now three or four well-equipped factories in the republic, and the raw material produced is still insufficient to supply the demands. Chinese silk, in skeins, is yet being received in large quantities from London. One very encouraging feature here is the cheapness and efficiency of the labor, women receiving 37½ cents per day, men \$1, this being the average; women are preferred for the work, because in this extremely interesting business great delicacy, nimbleness and neatness are essential. It is claimed, by those in a position to be well informed, that silk can be manufactured here for one-half of what it costs in Paris.—*Consul-General Porch.*

Influence of Railways.

The completion of the railways leading to the United States prejudiced the market and greatly diminished the production of cotton in Mexico, as cotton could now be imported without the expense and delay that were hitherto unavoidable. The Mexicans complain that the advent of railways has not only injured the producers of cotton at home, by facilitating the importation of American cotton in the degree necessarily the consequence of cheaper and quicker means of transportation, but that, by special and personal rates of freight, the railways have discriminated against Mexican producers. The effect of this reduction in favor of foreign cotton has caused Mexican cotton to fall in the market to \$11 or \$12 per hundredweight, at which price the profit of the producer is so insignificant that the cultivation of cotton is discouraged or prevented.—*Consul Mackey.*

Artificial Fish-Breeding in Switzerland.

Great efforts have been made during the past ten years in Switzerland, both by the government and by private enterprise, to advance the artificial culture of fish. Last year the federal government distributed the sum of 6,790 francs in prizes to fish-breeders, and the amount thus disbursed since 1880 is 31,806 francs, or over \$6,000. Weekly lectures of two hours' duration are given on the subject of "pisciculture," in the agricultural and forestry department of the federal polytechnic school in this city. Occasionally notices appear in the local papers stating that a consignment of young fish from America or Germany has been let loose in this or that lake or river. The eggs for breeding purposes are mostly imported from the United States or from North Germany, and consist principally of what are known as American whitefish (*Coregonus albula*, *Coregonus maræna* and *Coregonus albus*), American brook salmon (*Salmo fontinalis*), land-locked salmon (*Salmo salar*), and American rainbow trout (*Salmo iridea*).—*Consul Catlin.*

Soda Nitrate of Chili.

It is impossible to obtain trustworthy data as to the cost of labor relative to the quintal of salitre. Salitreros are not generally disposed to give with accuracy the items necessary to make up an exact estimate. Then, again, the cost of production varies in the different oficinas, owing to a variety of causes, as, for instance, the quality of the caliche and its abundance, the difficulties of its extraction, depending upon the thickness and hardness of the costra, the abundance or scarcity of laborers, distance from port, &c. It may, however, be stated that a quintal of coal at the present time will make about ten quintals of nitrate, and that a quintal of nitrate may be placed on board ship, all expenses and duties paid, for \$2.50 currency, or \$1.25 gold, at the present rate of exchange. This has reference to an oficina distant about forty-five miles from port. Salitre is used principally as a fertilizer, and to a limited extent in the arts and in the manufacture

of gunpowder. A quality inferior to 95 per cent. purity is rarely made. That of 96 per cent. is the only kind which is sent to the United States. The export duty on nitrate of soda is \$1.60 silver, at 38d. per metric quintal of 100 kilogs., or 207 pounds Spanish. In our tariff nitrate of soda is on the free list. The bulk of the nitrate is sent to Europe. The amount exported (to the United States) rarely passes a million of quintals. It is always sent to the States in sailing vessels.—*Consul Merriam.*

Agricultural Implements in Ecuador.

Consul-General Beach remarks: In the lower section the principal farm tool is the machete. Iron bars flattened at one end are used for planting rice, sugar-cane and Indian corn. In the mountainous sections, especially near Quito, crude wooden plows having a single handle are used. The part entering the soil is covered by a piece of iron fashioned by a blacksmith. It does not make a regular furrow, but works like a hog's nose, turning the soil both ways into ridges. Brush bound together is the only harrow in use. No agricultural machinery is used, unless sugar machinery may be thus rated.

Agricultural Tools in San Salvador.

Consul Duke transmits the following statements as to agricultural implements in San Salvador:

The only agricultural implements used or understood by the native are the large hoe, the bill-hook and the long knife, or machete, as they term it. With these they work very cleverly, which at best are but poor tools. The native plow is merely a triangular piece of iron, about four inches broad at the base, fastened to a pole, and with oxen the point of this rude implement is run through the land to the depth of about three inches, being perfectly valueless as a soil cultivator. Such labor-saving machines as seed sowers, harrows, rakes, plows, &c., are almost unknown, much as they are needed.

Export Trade of Japan.

The low rates of exchange on Europe and America have stimulated shipments of the produce of all Oriental countries, and of Japan among the rest. This increase of export trade, in conjunction with the reduced value of imports, has also greatly assisted the government and people of Japan in their efforts to create that excess of exported over imported commodities which was essential to their re-establishing the required flow of silver hither. But unfortunately for the merchants engaged in this export business, prices in all the communing countries have not only been lowered by the increased supply of Eastern goods, but by another and more subtle factor which few of them have known how to reckon with, namely, the continual appreciation of gold in all the Western countries, which movement appears to produce there just such effects as the contraction of the currency lately produced here, so that prices of commodities fall relatively more than the monetary charges in themselves seem to justify. In consequence of this state of things the export trade of Japan during the past year has been almost as uncertain in its condition and as unsatisfactory in its results as the trade in imports; and in neither have merchants made gains at all adequate to the energy and enterprise with which they appear to conduct their business. The remedy for such an unstable foundation of trade is such monetary regulations in the Western countries as will insure steadiness of prices under ordinary mercantile condition, and when this is attained commerce with the East will be more inviting.—*Consul Jernigan.*

Wheat in Asia Minor.

In the district of Castamoni wheat is worth 8 cents per bushel. The average price of wheat in England is about twelve times as much as it is worth in Castamoni. The carriage by railroad from Castamoni to Samsoon, a distance of 150 miles, would not exceed 12 cents; and 15 cents per bushel would, at present rates, be a high freight from the Black Sea to England. Add 9 cents per bushel for charges on this side—a rather high estimate—and 9 cents a bushel for selling charges in England, and the result shows that wheat at Castamoni ought to be worth, not 8 cents per bushel, but from 48 to 56 cents. It follows that, owing to want of means of transportation, the grain produce of Asia Minor only brings to the grower one-sixth, at most, of its real value on the spot where it is grown, and that five-

sixths of that value is lost to him. Castamoni is in a great grain-producing region, only a small portion of which, under these discouraging circumstances, is cultivated; and it does not require a very lively imagination to conceive the change that would be brought about in the impoverished districts of Asia Minor if the value of the main staple of produce were sextupled.—*Consul-General Heap.*

Ceylon Tea.

Ceylon tea needs only to be known to be appreciated, for it is in the opinion of many superior to Assam or any other Indian-grown teas, and possesses a delicacy of flavor, when properly brewed, peculiarly its own. An infusion of five minutes distills from it a delightful some beverage, and a longer maceration, say for fifteen minutes, produces a pungent liquor strong enough to almost make one's hair stand on end. The desirable quality first named is owing probably in some measure to certain elements in the soil of Ceylon conducive to the development of delicate spices and perfumes, the cinnamon here, for instance, being far-famed for superior excellence, and the nutmegs for a surprising amount of aroma. Some of the commonest weeds even are strongly aromatic, and the wild grasses yield valuable essential oils. The prime cause, however, of the unusually delicious aroma of Ceylon tea lies in the judicious preparation of the article, which, after plucking, is handled and cured entirely by delicate machinery in such manner as obviates much bruising of the tender leaflets, thus preserving their active principle and pure essence, to be brought out perfectly by a simple and brief application of boiling water. There is, however, as before written, a latent strength in this tea, which a little steeping soon develops, and those who like their drink strong have only to let it stand an additional ten minutes to obtain a liquor powerful enough for any tea drinker. The chief varieties of Ceylon tea are "Orange Pekoe," "Broken Pekoe," "Pekoe Souchong," "Mixed Tea" and "Dust," which are packed for shipment in boxes or chests containing each from five to eighty pounds. About one-quarter of the whole outturn is made into "Orange Pekoe," the other three-quarters into "Broken Pekoe" and "Pekoe Souchong."—*Consul Morrey.*

Tariff Revision in Austria.

The increase of the duty on crude petroleum will result to the benefit of crude American petroleum, for the reason that this oil can be imported under the classification upon which a duty of 1.42 florins per 100 kilogs. is imposed, while the Russian petroleum, which is imported in a partially refined state for the Hungarian refinery at Trieste, will be admitted only under a classification on which a duty of 3 florins per 100 kilogs. is imposed. Among the principal items affected by the tariff amendment are: Agricultural products, cattle and provisions. These items are raised to a level with the German tariff; the duty on Indian corn has been doubled; on barley, oats and wheat, trebled; rye is to pay six times the former duty; malt and flour two and one-half times the old rates.—*Consul-General Jussen.*

Culture and Commerce of Fruit in Honduras.

Consul Burchard, of Ruatan, remarks: The cultivation of tropical fruits for export to the United States constitutes the chief industry and about the only source of trade and revenue in this consular district. It was commenced only a score of years since, in a very small way, and although it has received no special encouragement or protection, and has been carried on without any regard to system or order, it has grown spontaneously and has gradually monopolized the labor and enterprise of these inhabitants. The trade in bananas, plantains and pineapples is most active from March to July. The average prices during that period are: For bananas, 62½ cents per bunch; plantains, \$8 per thousand; pineapples, 87½ cents per dozen; mangoes, \$2.50 per barrel; limes, \$3 per barrel; tamarinds, \$3 per barrel; oranges, \$5 per thousand. Fruit is shipped constantly during the entire year, but from July to March the prices are lower, the average for bananas being about 31½ cents per bunch, and for other fruits about 25 per cent. less than the prices above quoted. The season for cocoanuts is from August to January. They command the highest prices in October and November. The average during the shipping season may be stated at \$25 per thousand, and for the rest of the year at \$18. The United States is the only market for the fruits

exported from this district. New Orleans receives the largest part. From thence they are forwarded in fruit-cars to the North and West. I am assured by reliable authority that the freights carried by the railroads from New Orleans on bananas alone during the past year amounted to over \$200,000, and that the business is steadily increasing.

There are seven regular steamships constantly employed in the fruit trade between this district and New Orleans. These vessels have an aggregate carrying capacity of 100,000 bunches of bananas, 250,000 cocoanuts, 175,000 plantains, besides an assortment of pineapples, oranges, &c. They can make two round trips a month, but probably, owing to detentions, they do not average over ten annually. There are also two steamships from New York which call here regularly for cocoanuts. Besides the steamers there are some ten or twelve schooners engaged in carrying fruit from this district to New Orleans, Mobile and Key West.

Petroleum Wells of Java and Sumatra.

Minister Isaac Bell, Jr., writes from the Hague, under date of August 18, 1886: "I have learned from sources which may be considered as authoritative that the recent surveys in the islands of Java and Sumatra have brought to light the existence of petroleum wells of apparent considerable value. In order to fully explore and ascertain the approved system of working them, the Minister of the Colonies has commissioned A. Stoop, an officer of engineers, to visit the United States to thoroughly study the methods employed there for such work."

Two of the largest castings in the world are to be seen at Nara and Kamakura, Japan, the one at the latter place being forty-seven feet high, and the other at Nara being fifty-three and a half feet from the base to the crown of the head. The statue at Nara is supposed to have been erected in the eighth century, but it was destroyed and recast about 700 years since. In endeavoring to recast it several mishaps occurred, and when at last success came some few thousand tons of charcoal had been used. The casting, which is an alloy of iron, gold, tin and copper, is estimated to weigh 450 tons.

THE scheme for utilizing the water-power of Niagara River is being gradually carried into execution. The main idea is to construct a tunnel from the water level below the falls, 200 feet below the high bank of the river, extending through the rock to the Upper Niagara River, at a point about one mile above the falls, where a head of 120 feet is obtained. The tunnel thence is to extend parallel with the shore of the river 1¼ miles, at an average depth of 100 feet from the navigable waters of the rivers, with which it is connected by means of conduits or lateral tunnels. Since the incorporation of the company sufficient land along the river has been secured, surveyed and apportioned into mill sites fronting on the river and on the line of the proposed tunnel, with ample streets and dockages, affording facilities for approach by rail and water, to accommodate 238 mills of 500 horsepower each, or 119,000 horse-power in all, which is the engineer's estimate of the capacity of the proposed tunnel.

ONE of the most prosperous German steel works is the Rheinische Stalwerke, at Meiderich, near Ruhrort. The directors' report to be placed before the coming meeting of the stockholders, of course, complains of the fall in prices, and states that the receipts for royalty on the Thomas basic patent, which this company purchased in conjunction with the Hoerde Works, fell off 3,277,626 marks. Then the Warsaw Steel Works, of which the company holds securities, paid no dividends. Still, the profit-and-loss account shows profits of 919,559 marks, of which 200,445 are to be written off, leaving a net profit of 717,701. Out of this a dividend of 15 per cent. on 4,650,000 marks capital is to be paid. The company proposes to loan the Warsaw Steel Works 250,000 rubles to help it move its works from Poland to Southern Russia. The increase in the duties on foreign pig-iron, upon which the Polish works must rely, forces them to seek a field in Southern Russia, where they are not dependent upon foreign raw material, and can produce their own stock without being at the mercy of the furnacemen of the Oural Mountain district. The Rhenish Works have made a contract for a series of years to sell their basic cinder to a firm which will build a large grinding mill in the vicinity of the steel plant. It is expected that this will yield an annual revenue of 30,000 marks.

Foreign Notes.

Argentine Republic.

A project is on foot at Buenos Ayres to drain the marshy districts of Salado, Vecino, Samboromborn, &c., by means of a canal which will also serve as a waterway. A large cultivable territory may thus be regained. It is estimated that the cost of this undertaking will be \$40,000,000, and European capitalists are to be appealed to for aid in the undertaking.

Austria.

A Hungarian engineer has been using dynamite at Pesth for driving piles. He places an iron plate 15 inches in diameter and $3\frac{1}{2}$ inches thick in a perfectly horizontal position on the pile to be driven. A dynamite cartridge in the form of a disk, containing $17\frac{1}{2}$ ounces of dynamite, is placed on the iron plate and exploded by electricity. It is stated that the pile is driven by each explosion to a depth equal to five blows of a pile engine weighing $14\frac{1}{2}$ Vienna hundredweight falling 9 feet 10 inches. The iron plate on the average resists twenty-five explosions.

Belgium.

A project is on foot, backed up by a syndicate of English capitalists, to so improve the canal facilities between the interior of Belgium and the Scheidt as to greatly facilitate the shipment of the smokeless Belgium coal to London. The proposed plan includes the erection at Brussels of enormous coaling docks and wharves, with every facility for cheap handling. The advantage to the atmosphere of the city of London by the use of this fuel will be enormous, and before long it may really become possible for the average "cockney" to know what sunshine actually is.

The Belgian Minister of Railways has promised the coal-owners of the Charleroi district that special export tariffs for coals shall be introduced shortly on all lines leading to Ostend and Bruges. These reductions are made in connection with the efforts of Belgian coal-owners to develop a coal export trade with England, and it is hoped that with their aid the competition of German coal will be rendered impossible.

It is reported from Brussels that a treaty is to be signed between Belgium and Portugal. Belgium is to make use for the purposes of her export trade on the Congo of the Portuguese flag, and Portugal is to purchase all the manufactured goods which are necessary for her possessions on the Congo and which she does not buy herself in Belgium.

Burmah.

As per advices from Bullock Brothers, Rangoon, rice statistics up to September 15 were as under:

SHIPMENTS TO EUROPE.

	1886.	1885.	1884.
From Rangoon..... tons.	293,000	325,940	342,400
Akyab.....	115,000	102,720	86,160
Bassein.....	156,000	170,290	115,660
Moulmain.....	46,400	41,230	35,030
Calcutta.....	45,014	25,004	34,796
Madras.....	280	...	10,427
Saigon.....	...	25,188	84,549
Bangkok.....	...	8,781	16,017
Bombay.....	946	2,774	520
Java.....	2,520	3,050	906
Japan.....	34,645	5,350	44,295
Totals.....	693,805	720,277	770,760

STOCK IN EUROPE.

	1886.	1885.	1884.	1883.
London..... tons.	102,964	83,789	99,237	127,543
Liverpool.....	127,526	94,385	123,152	98,239
Bremen.....	119,696	141,198	108,237	111,141
Hamburg.....	45,728	41,090	38,049	36,735
Holland.....	86,867	75,569	85,973	70,134
Belgium.....	39,022	37,517	36,743	39,174
Copenhagen.....	8,526	6,176	12,398	10,458
Flensburg.....	7,122	8,754	8,930	8,115
Scotland.....	...	...	...	...
Total Northern Europe.....	537,451	488,678	512,719	501,539

France.....	20,085	22,214	26,721	68,087
Italy.....	33,793	35,940	77,801	54,174
Trieste and Fiume.....	10,052	21,569	15,561	10,584
Odessa.....	1,579	1,740	3,294	3,747
Turkey.....	...	...	1,330	1,449
Total Southern Europe.....	74,509	81,463	124,707	138,041

Grand totals.....	611,960	570,141	637,426	639,580
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AFLOAT SEPTEMBER 15.

	1886.	1885.	1884.	1883.
From Calcutta..... tons.	1,609	296	1,271	5,585
Madras.....	100	...	576	9,495
Akyab.....	22,494	23,546	12,961	63,011
Rangoon.....	41,861	64,855	72,641	100,094
Bassein.....	43,277	42,281	23,431	40,419
Moulmain.....	5,168	1,687	5,273	3,870
Java.....	...	...	...	650
Saigon.....	...	3,816	14,580	1,080
Bangkok.....	...	1,375	9,910	...
Chittagong.....	...	...	...	...
Japan.....	3,795	...	1,900	1,560
Totals.....	118,304	137,856	142,543	225,774

Brazil.

The *Diario Official*, of Rio, furnishes the details relating to coffee shipments thence and from Santos during the first two months of the crop year, as under:

RIO DE JANEIRO.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe..... bags.	197,050	204,450	180,483	197,513
United States.....	382,567	407,383	377,450	300,767
Other countries.....	18,333	20,783	26,350	31,666
Totals.....	597,950	632,616	584,283	532,266
Twelve months.....	...	3,614,682	4,097,811	3,093,545

SANTOS.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe..... bags.	251,800	167,950	125,115	245,083
United States.....	51,167	78,120	132,515	50,467
Totals.....	302,967	246,070	257,630	295,550
Twelve months.....	...	1,633,150	2,132,550	1,900,850

PERNAMBUCO.

October 1 to August 28.

	1885-6.	1884-5.
To Europe..... tons.	11,135	24,393
North America.....	39,357	47,793
Totals.....	50,492	72,096

Borstelmann & Co., Pernambuco, August 27, state that so far only small parcels of sugar of the new crop had made their appearance, but that the campaign would soon open.

F. W. Winkel reports from Bahia, August 26, that sugar has been dull in August at 1.050 reis the arroba No. 7, at which 9,000 bags Estancia sold. Small lots of new crop were arriving. There were copious arrivals of cocoa, 4,800 bags selling at 8.100 to 8.250 reis the arroba. Exchange, 21½d.

China.

The exhibition of French manufactures, which will be shortly opened at Tientsin, will not, it is said, consist of models and printed representations only, as originally intended. It has been decided that it shall be carried out on a larger scale and that articles of French manufacture, which it is thought may become popular among the Chinese, shall be exhibited.

It is intended to enlarge the Chinese arsenal of Port Arthur, and a part of the materials will be supplied by Austria-Hungary.

Following are the tea shipments from all China as per Siemsson & Co.'s statement of August 11:

	1886-7.	1885-6.
To England..... lbs.	84,159,539	86,713,533
the United States.....	9,892,164	9,660,804
the Continent, without Russia.....	962,134	336,727
Russia.....	10,463,516	7,851,885
Australia.....	14,039,953	10,560,230
Totals.....	119,517,306	115,125,179

Ecuador.

O. Wolfram & Co., Guayaquil, report cocoa receipts to September 1 as 319,978 quintals of 101½ pounds American, against 155,288 in 1885, and 144,878 in 1884. About the cocoa market they remark: After a slight decline prices recovered and quotations were: Arriba, \$20; Ballao, \$16.50; Machala, \$15.50 to \$15.75 per quintal on shore, which would equal at an exchange of 65 per cent. p. to resp. 61s. 4d. to 51s., 48s. 2d. to 48s. 11d. per English cwt. f. o. b. the steamer. Receipts were of an inferior quality, and for a few small superior lots higher prices had been paid. Total shipments to date of ivory nuts had been 123,354 quintals, against 97,900 in 1885, and 63,905 in 1884. About the ivory nut market they remark: Corozo ivory nuts had been scarce during the month and the small stock of Olmedo nuts was sold at from \$5.25 to \$5.50 per quintal on shore, which is equivalent at an exchange of 65 per cent. to about 16s. 6d. to 17s. 2d. per cwt. f. o. b. the steamer. Late receipts were generally in an unripe condition and consequently of reddish color and sold at \$4.75 to \$5 per quintal on shore, which corresponds to about 15s. 2d. to 15s. 10d. per cwt. f. o. b. Guayaquil.

France.

Following is the estimate of this year's beet-root sugar crop according to the *Journal des Fabricants de Sucre*, Paris, September 25:

		Actual Yield.	
		1886-7.	1885-6.
Germany.....	tons.	900,000	855,082
Austria.....		500,000	377,032
France.....		435,000	298,407
Russia.....		520,000	560,312
Belgium.....		70,000	48,421
Other countries.....		50,000	37,500

Total..... 2,475,000 2,146,754
Estimated increase, 325,000 tons. The *Journal* remarks: "The new beets begin to be harvested, and some of the sugar houses have commenced grinding. From all accounts the average of what has so far been gathered does not exceed 28,000 kilograms the hectare, and it appears that the beets are less juicy than what they were last year, but a little richer in saccharine matter. Rain is falling pretty much everywhere in France at this writing, which may, if it continues a little longer, modify

the result; still, we adhere to the above estimate of 435,000 tons of sugar to be produced. Possibly 450,000 tons may be obtained in France, should there be no further drawbacks. The price of No. 3 white sugar at Paris was 33 frs., against 47.50 in 1885, and 40.25 in 1884.

The Lyons silk market throughout the month was quiet, but very firm.

The wine trade at Bordeaux was moderately active, buyers holding back in view of the ample crop in prospect.

Germany.

At an adjudication held at Strasburg the tender of the John Cockerill Company, Seraing, for the supply of 4,059 tons of steel rails for the railway administration of Alsace-Lorraine was the lowest, the price being 105 marks per ton, delivered at Trois-Vierges. According to the German journals this figure allows only 70 marks per ton at the works, the import duty being 25 marks, and freight 10 marks per ton. The next lowest bid was that of De Wendel et Cie., Hayange, with a quotation of 107.50 marks at works. The Westphalian makers asked 112 marks at works.

A dirigible balloon of colossal dimensions has been for some time in course of construction in Berlin. A series of meteorological observations, extending over several years, have shown that near the earth the velocity of the wind in the temperate zone rarely exceeds 40 feet per second, and Herr Gaswindt, who has designed the great Berlin balloon, expects to attain a speed of 46 feet to 48 feet per second. A sum of £10,000, it is said, has already been offered for the patent. The balloon is 500 feet in length and 50 feet in diameter. The total weight is about 43,000 pounds, the envelope and netting alone representing 10,000 pounds. The propelling machinery consists of two steam engines of 50 horse-power each. The cost is estimated at £55,000.

Herr Hardicke, in a paper read before the Society of German Iron-masters, describes as follows the tests prescribed for the swords for the English army, now being made at Solingen by Weyersberg, Kirschbaum & Co. The blade must first support at its point a weight of 16 kilogs. or 35 pounds without showing any bend. Then the pressure is increased until the blade in bending shortens 16 cm. or 6.3 inches and yet is perfectly straight when the pressure is relieved. Then an oaken block is struck with full force, first with the edge and then with the back, followed by placing it in a templet to test the accuracy of the curvature. Finally the blade is bent in a special apparatus to a right angle, from which it must recover straight. The weight is tested and the position of the centre of gravity examined, and it is only when this proves satisfactory that the inspector passes the blade.

That coal mining is not a more dangerous occupation than many others is said to be shown by statistics just published in Germany in accordance with the new law concerning employers' liability. These statistics cover the period of eight months from October 1, 1885. In that period, the number of accidents in the whole of the German Empire was 14,081 or 40.4 per 1,000 workmen. In the section of Bonn, the accidents amounted to 38.3 per 1,000; in the section of Bochum, to 45.8 per 1,000; in the section of Clausthal, to 17.7 per 1,000; in the section of Halle, to 31.8 per 1,000; in the section of Waldenburg, to 44.9 per 1,000; in the section of Tarnowitz, to 33.4 per 1,000; in the section of Dresden, to 65.1 per 1,000; and in the section of Munich, to 33 per 1,000. The first three of these sections are mining districts.

The vintage on the banks of the Rhine, Moselle and in other localities of Western Germany commenced toward the close of September. The month had been warm and highly propitious to the maturing of grapes, which when the gathering began were in such fine condition that good quality was looked for pretty much everywhere, but the general yield will barely reach the average, and is likely to fall short somewhat of last year's.

The iron trade in Germany had begun to slightly pick up in September, the demand for finished reviving somewhat. Pig-iron was still depressed, in consequence of overproduction. There was a more hopeful feeling generally, however, on the strength of advices from other European countries and the United States expressing more confidence in the future. Reduction of output had been carried out in Germany in but few branches, and there was still considerable competition among makers in Rhenish Westphalia and Upper Silesia. Metals were, on the whole, steady, but not much higher than in August. In Upper Silesia there was an unusually active demand for sheet zinc, both domestic and for export; some manufacturers had to work overtime.

The Imperial Post-Office has issued a map showing the various mail steamship lines. This gives Germany's share in the postal traffic of the world, which will be seen from the following return: Between Asia and Europe twenty-seven mail steamship lines carry on regular services, three being German, viz., Bremerhaven—Shanghai (47 days), Hong Kong—Japan—Hong Kong (17 days), these lines belonging to the North German Lloyd, of Bremen, and Hamburg—Yokohama (62 days), Deutsche Dampfschiffahrt, Kingsin line. Africa is touched by thirty-two steamship lines, including two German, viz., Trieste—Brindisi—Alexandria (4½ days), and Hamburg—Loanda (53 days), Woermann lines. No fewer than fifty mail steamship lines trade with the coasts of America, viz., with North America, ten; Central America and West Indies, twenty-six, and South America, fourteen. Three German lines run to North America, viz., Bremerhaven—New York (9 to 10 days), Bremerhaven—Baltimore (14 days), and Hamburg—New York (12 days). Central America and the West Indies are called at by six German lines, viz., Hamburg—Vera Cruz—Tampico (30 days), Hamburg—St. Thomas—Colon (29 days), St. Thomas—Hayti (12 days), Hamburg—Carthagena (34 days), St. Thomas—San Domingo—Hayti (11 days), and Hamburg—Hayti—Colon (29 days), all belonging to the Hamburg-American Packet Company. South America is visited by five German lines, viz., Hamburg—Brazil (Santos, 29 days), Hamburg—Buenos Ayres (30

days), both Hamburg—American Company; Hamburg—Callao (65 days), Cosmos line; Bremerhaven—Brazil (Santos 39 days), Bremerhaven—Buenos Ayres (33 days). Nine steamship lines run to Australia, including two German, viz., Bremerhaven—Sydney (54 days), and Sydney—Samoa—Sydney (21 days). As to the German colonies, Togoland and Cameroon are visited by the Woermann line and the English line Liverpool—Southwest Coast of Africa (British and African Steam Navigation Company, African Steamship Company). No steamship line calls at Angra Pequena, which is only to be reached from Cape Town, whence English vessels sail. The German East African colony is visited by the English line Bombay—Zanzibar—Mozambique (British India Steam Navigation Company), whose ships call at Lamu, Mombas and Zanzibar. New Guinea is reached most quickly by the English line London—Brisbane (British India Company), whose vessels land at Cooktown, 50 days from London, the steamers of the New Guinea Company forming a connection at this port.—*Kuklow.*

Greece.

Advices from Patras, dated September 22, are to the effect that the currant crop in all Greece turns out to have been 129,600 tons. This highly satisfactory result has been due to the fine weather precisely when the grapes ripened, in July. The quality is, however, slightly inferior to years of drought. The bulk of shipments has been to England, Holland, Germany and the United States on board of English steamers. Prices at the close were: Provincial, 186@200 drams the 480 kilogs.; Figliatra, 190@195; Patras, 200@210; Vostizza, 210@230.

Holland.

The *Nederlandsche Courant* states in its monthly coffee review for September that good ordinary Java, which a year ago was not worth over 25 centimes the half kilog., now commands 30 centimes, due chiefly to the lower Brazil crop estimates. The quality of the new Brazil coffee is objectionable, and at Santos the weather has been unfavorable of late, even to the new crop of 1886-7 now growing. This and the reduced visible supply in Europe and America has started the wild speculation that has been going on on both sides of the Atlantic during September.

ARRIVALS DURING THE FIRST SEVEN MONTHS.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	215,400	288,330	259,260	309,970	262,280	267,750
America.....	135,266	129,789	112,056	117,775	112,836	109,341
Totals.....	350,666	418,119	371,316	427,745	375,116	377,091

DELIVERIES.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	250,350	252,180	219,010	244,070	221,680	222,900
America.....	135,550	136,867	120,181	118,208	116,623	114,876
Totals.....	385,900	389,047	339,191	362,278	338,303	337,776

STOCK AUGUST 1.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	136,300	183,550	193,350	187,100	154,650	129,400
America.....	33,402	30,769	31,334	23,720	21,794	24,369
Totals.....	169,702	214,319	224,684	210,820	176,444	153,769

Add thereto stock unsold in Netherlands Trading Company's hands, 275,700 bags in 1886, 551,700 in 1885, and 491,100 in 1884.

AMERICAN MOVEMENT.

	1886.	1885.	1884.	1883.	1882.	1881.
Arrivals, 7 mo's.....tons.	135,266	129,789	112,056	117,775	112,836	109,341
Consumption.....	135,301	136,774	120,081	110,553	111,044	103,059
Re-export.....	249	93	100	7,555	5,579	11,817
Total deliveries.....	135,550	136,867	120,181	118,208	116,623	114,876
Stock, August 1.....	33,402	30,769	31,334	23,720	21,794	24,369

GENERAL STATEMENT OF SEPTEMBER 1.

	bags.
Stock in Europe.....	2,462,400
Afloat from Brazil for Europe.....	530,000
Afloat from the East Indies for Europe.....	117,000
Visible supply of Brazil coffee in America.....	593,462
Afloat from the East Indies for America.....	123,253
Stock in Rio.....	42,500
Stock in Santos.....	150,000
TOTAL VISIBLE SUPPLY.....	600,000

TOTAL VISIBLE SUPPLY.

September 1, 1886.....bags.	4,078,615	February 1, 1886.....bags.	5,021,260
August 1.....	4,228,030	January 1.....	5,377,555
July 1.....	4,203,243	December 1, 1885.....	5,437,616
June 1.....	4,433,764	November 1.....	5,187,500
May 1.....	4,842,071	October 1.....	5,350,507
April 1.....	4,819,250	September 1.....	5,589,000
March 1.....	4,861,533		
Decrease in a single twelvemonth.....bags.	1,500,000		

Italy.

The Italian Government has issued particulars of an international competition of machinery and implements for the cultivation and treatment of hemp, which it is proposed to hold at Ferrara, from August 20 to August 31, next year. The exhibition will comprise all kinds of machines and instruments proper to the cultivation of hemp, such as plows of various kinds, drill-plows, &c., crushing-machines, brakes, stripping and peeling machines, especially those which strip and peel raw hemp, and produce 2 cwt. of commercial tow in an hour with a cost of less than 6 frs. per cwt.

An enterprising firm of Genoa is about to send abroad a floating exhibition of wine, liquors and other native products. The steamer chosen is about

290 feet long and 37 broad, tonnage 2,655, and speed ten miles an hour. In the saloon will be exhibited the wines and liquors, and there will be a bar for tasting. The rest of space will be occupied by specimens and patterns, while the hold will contain the goods themselves. The superficies of glass casing will be about 1,000 square yards, and the magazine will hold about 1,000 cubic yards of merchandise.

India.

Reports about the indigo crop estimate on August 28 the yield in Bengal at 20,000 factory maunds; in Behar at 51,750; in the Khoonties at 15,000 to 20,000; in Benares and the Doab at 35,000, the total figuring up some 125,000 maunds, against 108,962 in 1885. It is rather premature, however, for positive valuation.

Japan.

It is stated that the Japanese Government is arranging to place large orders in England for the engines, rails, bridges and plant required for the railway development which they have decided to execute immediately.

Java.

Advices, dated September 25, give the government estimates of this year's coffee crop at 781,400 piculs. At the government Batavia coffee sale, 10,000 piculs Samarang sold at 34.17 guilders and 15,000 Malang 33.31; at the next auction, to come off September 29, there were to be sold the same quantities of both. The Padang crop estimate has been confirmed; it will be 70,000 piculs; the Macassar crop estimate is 100,000 piculs, and that of Menado is valued at 22,700.

Sugar shipments from Java have been as under to all quarters:

	1886-7.	1885-6.	1884-5.
Exports during July.....tons.	13,996	18,704	15,341

Planters show more firmness and prices have advanced about half a guilder from late lowest point. It is reported that, owing to more or less unfavorable weather, the quality may be scarcely up to the average of previous years and the total yield less than last season.

Sugar exports in August were as follows:

	1886.	1885.
By sailing vessels.....230,000 piculs, equal	13,800 tons.	21,742 tons.
By steamers.....77,000	4,620 "	9,359 "

Totals.....18,420 tons. 31,101 tons.

During the crop year ended June 30, the total shipments to Europe were 335,862 tons, against 313,842 tons in 1884-5, and 283,155 tons in 1883-4.

Mauritius.

Following is a comparative statement of the exports of sugar to August 26:

	1886-7.	1885-6.	1884-5.
To United Kingdom.....tons.	151	1,769	728
France.....	...	...	...
Australia.....	464	...	856
New Zealand.....	...	...	308
Cape of Good Hope.....	379	202	428
Bombay.....	4,744	2,949	2,927
Calcutta.....	...	...	...
United States of America.....	...	364	...
Other places.....	1,207	123	52
Totals.....	6,945	5,407	5,299

On August 30 the weather continued exceptionally dry and very unfavorable for crushing, but it would take another fortnight before the mills could be fully at work and an assortment obtainable.

Philippine Islands.

Following is a comparative statement of sugar shipments from the three ports up to August 2:

	1886.	1885.	1884.
To Great Britain.....tons.	20,149	19,485	12,129
United States.....	103,302	74,284	55,453
Sundries.....	16,353	21,099	15,863
Totals.....	139,804	114,868	83,445

Russia.

The fair recently held at Nijni-Novgorod is reported to have yielded results that, on the whole, may be described as satisfactory, the advance of prices in certain raw products having contributed to this favorable state of things.

It is reported that one of the largest firms in the United States is busily engaged in carrying out a large contract for the military authorities at St. Petersburg for metal sheathing, the cost of which will amount to nearly £1,000,000. The contract, it is added, has been sent across the Atlantic simply to test if it can be executed in a way equal to the work supplied by English contractors.

Some interesting particulars have been issued in regard to the construction of the last stage of the Merv Railway, among which are the following: Between Karybent and Merv the rails were laid to the extent of 119 versts in the space of 36 days, which, if Sundays and festivals are excluded, become only 30 working days. To the 119 versts should also be added 7 versts of sidings constructed during the same period, so that the total per diem was rather more than 4 versts, or nearly three English miles. The works were carried on in military fashion. Morning work began to the sound of the drum, the men proceeded to the line from their huts at the quick march, and the officers gave the signal for breaking off.

The latter superintended the work on horseback. The soldiers worked with extraordinary emulation, and even the officers ate in haste and were never long absent from the line.

Spain.

A meeting of the principal iron-ore mine owners in Spain was held at Bilbao to consider the desirability of forming an association with a view to regulate the price of iron ore. A committee was appointed to discuss the details and draw up a basis on which to proceed. It is understood that the meeting, which was called by the owners of the three largest ironworks in Bilbao, was enthusiastic and unanimous.

The Madrid *Revista Venicola y de Agricultura* of September 25 states, with reference to the vintage in Southern Europe, that while the wine crop will be larger in France and of better quality than the last, this is not likely to be the case in Italy, where the various vine diseases did considerable harm; possibly Italy may turn out an average yield. Portugal will reap a little above half of last year's crop, which was unusually abundant; quality will be good. In Spain there will not only be abundance this year—greater than in 1885—but excellent quality. The tabular statement at foot represents the world's average vintage:

	France.....hectolitres.	45,053,000	Roumania.....hectolitres.	1,000,000
Italy.....	27,538,650	Servia.....	630,000	
Spain.....	20,519,000	Switzerland.....	600,000	
Austria-Hungary.....	7,852,000	Belgium.....	1,500	
Portugal.....	4,000,000	United States.....	1,140,000	
Russia.....	1,845,000	Algeria.....	360,000	
Germany.....	1,768,260	The Cape.....	170,000	
Greece.....	1,350,000	Australia.....	72,000	
Grand total.....			113,899,410	

West Indies.

TRINIDAD.—A report, dated September 3, states that the weather had continued favorable for the growing crops, although rather wet in certain districts.

SUGAR SHIPMENTS FROM TRINIDAD.

	Hhds.	Tierces.	Bags and Barrels.
1886.....	21,567	10,839	188,825
Of which to America.....	21,150	9,680	89,719
1885.....	39,786	11,018	196,345
1884.....	40,204	8,640	136,145

It will be noticed that the bulk of the rather light shipments was absorbed by the United States.

CUBA.—Stocks of sugar are gradually diminishing by shipments to the United States, where sales have been made all along considerably above European parity. Prospects for the next crop meanwhile continue favorable. On September 4 the figures of Havana and Matanzas, compared with the previous year, were as follows:

	Boxes.	Bags.	Hhds.
Weekly receipts.....	127	3,561	39
" clearances.....	...	20,028	394
" to Channel and U. K.....	...	...	...
Total receipts, including stocks on January 1.....	63,106	1,703,356	57,677
" shipments to all ports.....	41,165	1,029,015	59,351
" Channel and U. K.....	...	...	...
" Stock.....	30,180	565,959	9,741

	Boxes.	Bags.	Hhds.
Weekly receipts.....	459	4,282	2,749
" clearances.....	4	39,294	1,951
" to Channel and U. K.....	...	...	...
Total receipts, including stocks on January 1.....	116,951	1,211,112	160,320
" shipments to all ports.....	66,791	813,052	135,306
" Channel and U. K.....	2,183	76,341	6,553
" Stock.....	32,641	364,022	22,485

HAYTI.—A. Schmidt & Co. report from Port-au-Prince, August 17, that coffee receipts had been light since July 20, and that the market has been tending upward in response to the improvement abroad, \$7 to \$7.25 being paid for good ordinary; \$7.50@8 for Port-au-Prince sorts, and \$8.50 for superior St. Marc. Of cocoa there was no supply left. Logwood has been extremely scarce all over the island, causing an extraordinary advance to \$7.50@8.50. Subsequently when the pressing demand had subsided, it gave way to \$6@6.25. Exchange, thirty pays' sight in New York, 27½ per cent.

ONE of the decorating kilns at the Trenton potteries has been successfully fired with coal gas made by a new process, which, it is said, will reduce the cost of firing one-half.

A REMARKABLE example has been presented at Pesth, where the deepest artesian well in the world is that now boring for the purpose of supplying the public baths and other establishments with hot water. A depth of 3,120 feet has already been reached, and it furnishes 176,000 gallons daily, at a temperature of 70° Cent.—158° Fahr. The municipality has lately voted a large subvention, in order that the boring may be continued to a greater depth, not only to obtain a larger volume of water, but at a temperature of 80° Cent.—176° Fahr. It is suggested that it is thus within the bounds of probability that the time may come when a brewer will obtain his water supply from a well of sufficient depth to yield "liquor" at the mashing temperature.

Review of the Markets.

Reports for the Month ended October 1.

Butter.—The demand for choice and fancy brands about exhausts the supply, and valuations as to these grades are readily maintained. Nothing lower than 30 cents is named for State pails. In the lower grades there is a slight degree of uncertainty and the demand is very light. We quote: Creamery, 20@30c.; State, 15@26c.; Western, 9@18c.

Cheese.—While the position of the market has been unsatisfactory, transactions toward the close afforded more encouragement. The market, however, is without animation. We quote: State factory, fancy, September, 11½@12c.; do., August, 11½@11½c.; choice, 11½@11½c.; prime, 10½@11c.; good, 10@10½c.; medium, 9@9½c.; fair, 8½@9c.; night skims, 6@10c.; dead skims, 4@5½c.; Ohio flats, fair to good, 7@9½c.; do., fine, 10½c.

Coffee.—The market for Brazil grades has been quiet and irregular, with a decline of about ½c. at the close. The important features have been the large receipts of Rio and the very unusual large arrivals of Santos, and because of this a lack of confidence has been developed. Late sales have included fair, steamer afloat, 10.70@10.75c. for No. 5, 10½c. for No. 6 and 10½c. for No. 7, all afloat. The Rio coffee monthly statement of William Scott's Sons is as follows:

Stock in warehouses September 1, 1886.....	bags.	363,048
Received since—		
At New York.....	bags.	153,617
Baltimore.....		11,508
New Orleans.....		33,705
		198,830
Total supply.....		561,878
Delivered from warehouses since—		
At New York.....	bags.	179,469
Baltimore.....		25,044
New Orleans.....		24,965
		229,488
Stock in warehouses October 1, 1886—		
At New York.....	bags.	257,019
Baltimore.....		43,273
New Orleans.....		32,098
		332,390
Afloat and loading for United States to September 4.....		50,608
Purchased for United States to September 4 (15,000 Santos).....		217,500
		600,498

Total visible supply October 1, 1886..... bags. 600,498

In mild coffees East India descriptions have ruled quiet. Buyers have been offering 18½c. for September Padang, with 19c. asked, and 18c. for October afloat, with 18½c. asked. West India grades are quiet and steady, stocks in first hands being held above buyers' views. We quote: Rio, ordinary cargoes, per pound, 10½c.; fair do., 11½c.; good do., 11½c.; prime do., 12c. Santos, fair to good cargoes, 11½@11¾c.; Java, 11@23c.; Singapore, 10½@12½c.; Ceylon, 9½@10½c.; Maracaibo, 9@12c.; La Guayra, 8@11c.; Jamaica, 7½@11½c.; San Domingo, 7½@7¾c.; Porto Rico, 10@12c.; Central America, 9@13c.; Mexican, 9½@12½c.; Angostura, 11@12c.; Savanilla, 10@13c.; Mocha, 17½@18½c.

Cotton.—"Spot" cotton has been in only moderate demand, the market closing stronger and 1-16c. higher. Middlings quoted at 9½@9 11-16c. Futures have been only moderately active, with prices irregular. The market has favored sellers mostly, but closed at a decline of 5 to 10 points. Closing figures were: October, 9.16@9.17c.; November, 9.22@9.23c.; December, 9.27c.; January, 9.34@9.35c.; February, 9.43@9.44c.; March, 9.51@9.52c.; April, 9.60@9.61c.; May, 9.69@9.70c.; June, 9.77@9.78c.; July, 9.85@9.86c.; August, 9.91@9.92c.

Dry Goods.—The volume of trade has been large for this season of the year. Woolen goods have fallen off somewhat in demand, as was expected, and as is natural at the close of a large distribution of autumn goods. Clothing woollens have been in irregular demand, orders for spring having been placed more cautiously than ever. Soft wool fabrics and ladies' dress-wear woollens have had a liberal distribution, the execution of old orders absorbing the chief receipts, while new wants have taken a very fair supply. Flannels and blankets have been in the usual lessened demand. Kentucky jeans have been doing well in the way of deliveries on orders which will occupy the mills for the next month, while hosiery, underwear and knit goods have been in good delivery, although in consequence of labor troubles many orders have been delayed. Satinets have had fair attention. The new business in cotton goods has reached very satisfactory proportions. Printing cloths have been in active demand, with large sales at 3½c. for 64x64 cloths and 3½c. for 56x60 cloths, sellers being indifferent at the close. Desirable fabrics of any class have shared in a good demand and distribution. Wide sheetings have moved more freely. Bleached shirtings have been in steady request and low and medium grades are out of stock, and supplies of any more nominal than previously. Flat-fold cambrics are higher, in sympathy with printing cloths, and similar qualities of bleached cottons have sympathized accordingly. Denims and tickings are in very reduced stocks, and prices are fractionally dearer. All classes of colored goods are more or less higher, if not in actual figures, through reduced discounts. The tone of the market is exceedingly firm, and with the chief production well under the control of orders it would be remarkable for the same character of demand to be continued. The imports of foreign dry goods at this port for the closing week amount to \$2,179,420, showing a decrease of \$161,155 as compared with the previous week, and an increase of \$486,516 as compared with the corresponding week last year. The total of goods marketed for the closing week has been \$2,322,387, or \$42,967 more than the imports. The total imports since January 1, 1886, have been \$91,037,832, against \$77,438,958 for the same time in 1885, or an increase of \$13,598,874.

Drugs and Chemicals.—There is a more active demand and a stronger market all around. We quote: Soda ash, \$1.35; bleaching powder, \$1.80@1.85;

caustic soda, \$2.50@2.52½; sal soda, 87@90c.; acetic acid, 2½@2¾c.; oxalic acid, 6½@6¾c.; citric acid, 65@66c.; tartaric acid, 43@45c. for crystals and 44@46c. for powdered; acetate of lime, 1½@1¾c. for brown; aloes, 6½@7c. for Cape and 12@12½c. for powdered; alum, \$1.75@1.87½ for lump and \$1.87½@2 for ground; ammonia carbonate, 9c. for English and 9½@9¾c. for D. and O.; assafetida, 10@11c.; arnica flowers, 7@8c.; albumen, 17@17½c. for foreign blood; arsenic, 2½@2¾c.; balsam copaiva, 30@33c.; balsam tolu, 32@35c.; balsam Peru, \$1.10@1.20; bichromate of potash, 9½@10½c. for Scotch; borax, 7c. for refined in bbls.; blue vitriol, 4½@4¾c.; brimstone, \$21.25@21.50 for seconds; buchu leaves, 6½@10c. for shorts and 26@27c. for longs; cantharides, \$1.90@2 for Russian; camphor, refined, 22½@24c.; castor-oil, 17@18c. in bbls. and cases; cardamoms, 60@75c. for Aleppo and 50c.@\$1 for Malabar; cassia buds, 10½@11c.; camomile flowers, 12@20c. for old and 30@35c. for new German; cutch, 6½@6¾c.; chlorate of potash, 16½@16¾c. for crystal and 16½c. for powdered; cochineal, 30@31c. for Teneriffe silver; cream tartar, 34½@35c. for crystals and 35@36c. for powdered; gambier, 4½@5½c.; ginger, 13@14c. for Jamaica bleached and 9@10c. for unbleached; glycerine, quoted 15@19½c.; Guarana, \$1.37½; iodide of potash, \$2.65@2.73; ipecacuanha, 87½@90c., and powdered, 90c.@\$1; licorice paste, 27@28c. for P. & S., and 30@32c. for Corigliano; manna, 55@60c. for small flake and 95c. for large flake; morphine, \$1.85@2.40 for domestic; opium, \$2.75@2.90 for new, duty paid; oil cloves, \$1.55; oil cassia, 60@65c.; oil anise, \$1.55; oil lemon, \$1.75@2.50, as to brand; oil sassafras, 34@37c.; oil wintergreen, \$2@2.10; oil bergamot, \$2@2.75; oil peppermint, \$3@3.50 in tin and \$3.50@3.60 in glass; prussiate of potash, 20½c. for American yellow; quicksilver, 50@52c.; quinine, 49@50c. for German and 58@65c. for American; roots, 4½@4¾c. for gentian; Seneca root, 43@45c., and Colombo root, 9@12c.; ginseng, \$1.80@2.30; sarsaparilla, 9@10½c. for Mexican; seeds, 4½@5c. for Trieste brown mustard and 5½@6c. for California yellow; senna, 30c. for Alexandria; shellac, for D. C. and L. B. over and S. under, 17½@18c. per lb.; V. S. O., 14@14½c. per lb.; I in diamond, 13½c. per lb.; sticklac, —c. per lb.; sugar of lead, 6½@7c. for brown and 12c. for white; Tonka beans, \$1.60@1.65 for Angostura.

Freights.—There has been a freer movement in berth freights, with a corresponding hardening of the market. Vessels for charter have been receiving more favors, and while the demand is not active it is very fair and agents generally are insisting on full rates. Cotton vessels have been wanted, and full rates are quoted. For naval stores the demand is light, and the same may be said of petroleum tonnage. Case-oil vessels have been having moderate favors, while there has been a freer inquiry for vessels to West Indies. Lumber vessels and colliers have been in light call only.

Quotations from New York to United Kingdom and Continental ports:

	Grain.	Oilcake.	Flour.	Sugar.	Provisions.	Cheese.	Beef.	Pork.	Cotton.
Liverpool (steam)	4	12.6	15.	17.6	20.25	20@25	33.6	2.6@2.9	13.64@7.32
London (steam)	3½@3¾	11.3	12.6	12.6	20.22.6	25.	4.6	3.3	....
Glasgow (steam)	3½	11.3	12.6	16.3	13.9@20.	25.	3.6	2.3	....
Bristol (steam)	5, store.	13.9	15.	20.	17.6@20.	25.	4.	3.	....
Leith (steam)	5, store.	15.	15.	17.6	20.	25.	4.	3.	....
Hull (steam)	4½	15.	15.	17.6	20.	25.	4.	3.	....
Newcastle (steam)	5, store.	15.	15.	17.6	20.	25.	4.	3.	....
Antwerp (steam)	4@4½	13.9	15.	17.6	17.6@20.	..	4.	3.	9.64@5.32
Hamburg (steam)	6.	15.	15.	17.6	85pf.	..	..	..	11-6d.
Bremen (steam)	6.	15.	15.	17.6	90pf.	..	30c.	30c.	3-16d.
Copenhagen (s'm)	3@4½	..	..	18.9	..	..	4.	2.9	....
Marseilles (s'm)	3.6	..	..	30.	32.6	..	32.6	32.6	....

Cork for orders, sail, 3s. 9d.; steam, 3s. 6d.@3s. 9d. Direct port, United Kingdom, 3d.@6d. less.

OIL QUOTATIONS.

	Refined Petroleum.	Naphtha.	Cases.
Cork and United Kingdom.....	2.7½@2.10½	2.10½@3.1½	15@16
Direct port, United Kingdom.....	2.3	2.6	Adriatic..... 4@11
Direct Continent.....	2.3	2.6	Mediterranean. 14@15
Baltic.....	2.9	3.	

Fruits.—Foreign Dried—The market has been more active, and prices generally are well sustained. We quote: Valencia raisins, 6@9½c.; loose muscatel, \$1.60@2.20; London layers, \$2.10@2.55; Sultana, 7½@8c.; Ondara layers, 9½c. —Princess, paper shelled, 24c.; Sicily shelled, 22½@23c.; Jordan, 40c.; Tarragona, 14½@14¾c.; Ivica, 14c.; Languedoc, 14½c.; French sardines, 11@11½c. for quarter boxes and 16@16½c. for half boxes. Citron, 10½@19½c. Currants, 4½@5½c. Figs, 9@14c. Turkey prunes, 3½c.; French prunes, 7@14c. Grenoble walnuts, 14½@15c.; French do., 6@7c.; Naples do., 14½c. Sicily filberts, 7½@7¾c. Dates, 5½@6½c. for Persian in boxes, and fards, 7@7½c. Brazil nuts, 6½c. Fresh Fruits—Pears—Bartlett, per keg, at \$2.50@3.25; Seckel, per bbl., at \$3@4.75; Sheldon, per bbl., at \$3.25@4. Apples—Gravenstein, per bbl., at \$2@2.50; maiden blush, per bbl., at \$2.25@2.50; common varieties, at \$1@1.75 per bbl. Peaches—Jerseys, best, at \$1.25@1.75 per basket; do. good, at 75c.@\$1; do. plain, at 40@80c. per basket. Grapes, 6@7c. for up-river Delaware per lb.; Catawba, at 5@6c. per lb.; Concord, per lb., 2½@3c. Plums, 8@10c. per quart for Quackenboss; \$2.50@3.50 per bbl. for Damson. Domestic Dried—The market has been very quiet for most sorts, and prices are generally unchanged. Apples—Fancy evaporated, 9c.; choice, 8@9½c.; Tennessee quarters, —c.; Southern sliced, prime, 2@3c.; North Carolina fancy sun-dried, new, 5½@6c.; do. choice, 4c.; do. prime, 3@3½c. Peaches—North Carolina, peeled choice, new, 11@11½c.; do. fancy new, 12@12½c.; Georgia choice, 9½@10c.; prime fancy, new, 10½@11c.; Delaware evaporated, peeled, 23@26c.; unpeeled, new, 12½@13½c.; cherries, pitted, 9½c.; raspberries, evaporated, 14@14½c.; do. sun-dried, 12½@13c.; blackberries, prime, 8c.

Flour and Meal.—The market for State and Western flour closed generally heavy, with 5@10c. taken off in several instances. The inquiry is moderate and sellers are eager to do business. City mills have had good inquiry and favorite

makes are sold ahead at \$4.50 for West India. We quote: No grade, \$1.90 @2; fine, \$2.00@2.65; supers, \$2.40@2.90; extras No. 2, \$2.90@3.35; extras No. 1 \$3.25@4.25; clear bakers', \$3.25@4; straight bakers', \$4@4.60; patents, \$4.50@4.90; city extras (European) in 140-lb. sacks, \$3@3.75; city West Indies, \$4.50; city patent, \$4.50@5.10. Southern flour has been dull but not lower. We quote: Fine, \$2.50@2.75; supers, \$2.65@2.85; extras, \$3.25@4.25; Richmond first, \$4.87½@5; Richmond second, \$4.37½@4.10; and patents, \$4.50@4.90. Rye flour has been fairly active at recent reductions. We quote: Fine at \$2.25@2.40 and superfine at \$3.25@3.35. Corn meal is steady at \$2.65@2.90 for Western, \$3.40@3.75 for Western granulated, and \$2.90@2.95 for Brandywine.

Grain.—Wheat for prompt delivery closed weak and ¼@½c. lower under large offerings. There is a moderately active trade on export account, but millers are light buyers. Late sales include No. 1 red, 89½c.; No. 2 red, afloat, 84¼@85½c.; closing, 85½c.; No. 2 red, in elevator, 84@84½c., closing at 84½c.; No. 3 red, 82¼@83½c., closing at 82½c.; red ungraded, 73@86c.; new No. 2 Chicago, 83½c.; old No. 2 Chicago, 79@80c.; old No. 2 Milwaukee, 80@80½c. Options were stronger, advancing ¼ to ¾c., and offerings were less urgent. We quote closing prices as follows: October, 84½c.; November, 86½c.; December, 88½c.; January, 90c.; May, 95½c.; June, 96½c. "Spot" corn has been slow, and with free offerings prices are weak and lower. Closing quotations were: New No. 2, in elevator, 46½c.; do., afloat, at 46½c.; ungraded mixed, in lots, 45@47c.; No. 3, 44½c. Options were less active but closed firmer. Closing sales were: October, 46½c.; November, 48½c.; December, 49½c.; May, at 51½c. Oats on spot were weaker. Trading was more active, chiefly in No. 2 mixed, and sellers traded freely. Late sales were: No. 2 White, 35½c.; No. 3 White, 35c.; No. 2 elevator, 31½@31¾c.; white Western, ungraded, 35@41c.; Western mixed, ungraded, 28@33½c.; White State, ungraded, 34@37c. Options were irregular, weakening slightly under moderately active demands. Late sales were: October, 31¼@31¾c.; November, 32¼@32½c.; December, 33¼@33½c.; May, 36½c.

Leather.—Consumers of hemlock sole have been supplying their current wants only. Calcutta buffalo has been in moderate request, while the demand for Union tanned has been fairly active and stocks have been gradually diminishing. Prices generally are steady. We quote: *Hemlock Sole*—Non-acid Buenos Ayres light, first selection, 21@21½c.; middle do., 22@23c.; heavy do., 22@22½c.; light seconds, 19@19½c.; middle do., 19½@20c.; heavy do., 19½@20c.; damaged, all weights, 17@18c.; non-acid California light, first selection, 21c.; middle do., 21½@22c.; heavy do., 21½@22c.; light seconds, 19c.; middle do., 19@19½c.; heavy do., 18½@19c.; non-acid common hides—light, first selection, 20c.; middle do., 20½@21½c.; heavy do., 20@21c.; light seconds, 18@18½c.; middle do., 18½@19½c.; heavy do., 18½@20½c.; damaged, all weights, 15@17½c. *Union Tanned*—Slaughter—Light backs, 31@31½c.; middle backs, 30½@31½c.; middle backs, heavy, 30@31c.; seconds, backs, 28½@29½c.; light crop, 28@29½c.; middle crop, 28½c.; bellies, 15@15½c. *Calcutta Buffalo*—Light, 18@19c.; middle, 17@18½c.; damaged 15@17c.; poor damaged, 12@13c.

Lumber.—There has been a very fair trade in the lumber market, stocks are in excellent shape and there was at the close a hardening tendency. Lath is steady at \$2.15@2.25 per M. for Eastern, according to quality. Quotations are: Spruce, random cargo, \$13.50@16 per M. feet; do. special cargo, \$16@18. White pine, South American shippers, per M. feet, \$28@29; do. West India shippers, \$15@17; do. box boards, \$14@15. Yellow pine, random cargo, \$18@19.50; do. special cargo, \$15.50@21; do. green flooring boards, \$17@18; do. dry flooring boards, \$21@22; do. siding, \$21@23; do. cargoes f. o. b. Atlantic ports, rough, \$13@15; do. cargoes f. o. b. Atlantic ports, dressed, \$18@20; do. cargoes, f. o. b. Gulf ports, rough, \$12@14; do. cargoes f. o. b. Gulf ports, dressed, \$19@21.

Metals.—Copper—Ingot has been very quiet, offerings being moderate and only small lots inquired for. Lake is quoted 11@11½c., Arizona, 10@10½c., and Baltimore, 9½c. nominal. Pig-Iron—There has been a very fair business in progress for foundry iron for early delivery, mainly in small lots, however. Sales have been made at \$18.50@19 for No. 1 X and \$17.50@18 for No. 2 X, and only regular customers of certain companies can buy lower than this. Supplies are still well under control. Gray forge is steady at \$16@16.50 for best Lehigh brands and is in fair demand. Scotch pig remains quite firm and is selling to quite the full extent of present importations. We quote: \$18 for Eglington, \$19 for Dalmington, \$18 for Ayreson, \$18.50@19 for Glengarnock, \$19.50 for Gartsherrie, \$19.75 for Summerlee and \$20 for Coltness. Old Rails—Tees are firm at \$22 on spot. Steel are scarce and have been sold at \$22.75. Scrap Iron—No. 1 wrought is selling in a moderate way at \$20@20.50 from yard. Foreign, to arrive, is quoted at \$19, while for fish-plate, to arrive, \$25 is asked. Car wheels are firm, with sales at equal to \$17 here. Steel rail—No new business of importance has developed. Agents' prices are \$35@36 at works for this year's and \$34 for next year's delivery. Foreign cost \$37.50 laid down at tidewater. Lead—Pig-lead has been quiet. Common is offered liberally at 4½c., but bids are not above 4.45c., and are not numerous at that. Pig-Tin—Speculation has been fairly active at easier prices, but consumers are still indifferent. Sales include Straits at \$22.40@22.45c. cash, \$22.40@22.45c. for October, and \$22.50@22.55 for November. Business in tin plates is not at all vigorous. We quote spot lots as follows: I. C. charcoal, ½ cross assortment, \$4.65 for Allaway and \$5.15@5.20 for Melyn grade; for each additional X add \$1 and \$1.50 respectively. I. C. coke, \$4.20@4.25 for B. V. grade; \$4.30@4.35 for J. B. grade.

Molasses.—Foreign descriptions have been in moderate demand, and values are without material change. We note sales of St. Croix at 22@23c. New Orleans has been quiet and without special feature, buyers taking goods in a hand-to-mouth way, and showing no disposition to stock up. We quote: Cuba, 50 test, 18@18½c.; Porto Rico, 23@34c.; Barbadoes, 23@25c. Demerara, 15@17c.; Martinique, 15@17c.; New Orleans, 38c. for best, 36c. for choice, 32@34c. for prime, and low grades, 15@20c. Sugar-house molasses, 10c. for ordinary in hhd., 12½c. for extra heavy,

and 11c. in bbls. Sugar, 16@17c. for low, 20@22c. for common, 22@23c. for fair, and 25c. for best.

Naval Stores.—The spirits of turpentine has ruled stronger under firmer cables and Southern markets and prices are higher. We note sales at 37¼@37½c., closing at the outside price asked. Rosins are dull, and only small sales have been made. We quote: Strained, \$1; good strained, \$1.05; No. 2 (E) \$1.30; No. 2 (F), \$1.45; No. 1 (G), \$1.55; No. 1 (H), \$1.60; good No. 1 (I), \$1.70; low pale (K), \$2.20; pale (M), \$2.70; extra pale (N), \$3; window glass (W), \$3.25. Tar quoted at \$1.90@2.40 for Wilmington; pitch quoted at \$1.50@1.60.

Paper.—Business during the month of September has been very fair in volume, but low prices still rule. Some of the mills were compelled to shut down a short time, owing to low water, and this aided in steadying the market. All grades hold their own very well. Strawboards have been active, and straw wrappings have been in better movement. We quote: Fine flat caps, 13@15c.; superfine, 16@18c.; record and ledger, 18@22c.; supersized and calendered book, 7½@10½c.; do. do., extra machine finish, 7@7½c.; do. do., low grade, 6½@7½c.; news, No. 1, 5@5½c.; do., rag and wood, 4½@5½c.; do., straw, 5½@5¾c.; manillas, No. 1, light weight, 7½@8½c.; do., heavy weight, 6½@7c.; No. 2 manillas, 5@6c.; No. 3, do., 2½@3c.; straw wrapping, heavy weight, 1½@2c.; do. do., light weight, 2¼@2½c.

Petroleum.—The trading in "Certificates" has been light, and prices closed without material change. In refined oil the market is quiet, quotations remaining 6½c. New York and 6½c. Baltimore and Philadelphia for 70° Abel test. Case oil has been doing a moderate business, and the market is steady at 8½c. for plain brands. Home lots barreled oil are quoted at 7¼@7½c. for 110° test standard white; 7¼@8c. for 120° test, do.; 8¼@8½c. for 130° test do.; 8¼@9c. for State test do., and 9¼@9½c. for 150° test water white. Crude in barrels is quoted at 6c. for Bradford and 6½c. for Parker. Prime city naphtha closed at 8½c.

EXPORTS OF REFINED, CRUDE AND NAPHTHA, FROM ALL PORTS, JANUARY 1 TO SEPTEMBER 30.

	1886.	1885.
From Boston.....gals.	4,085,642	6,886,220
Philadelphia.....	111,880,029	111,150,804
Baltimore.....	12,220,029	8,825,774
Perth Amboy.....	3,998,017	..
Totals.....gals.	132,183,717	127,062,797
From New York.....	286,050,202	280,278,477
Total exports from United States.....	418,233,919	407,341,274

Provisions.—Lard—The market has been fluctuating four to six points, but closed at steady prices. Spot has been in fair refining demand at 6.55c., with 6.50c. bid and 6.60c. asked. Late option sales include: October, 6.27@6.35c.; November, 6.23@6.28c.; December, 6.25@6.30c.; January, 6.33@6.39c.; February, 6.39@6.44c.; March, 6.44@6.48c. Refined lard has been in good demand, but at further concessions, late sales being Wilcox at basis of 7.50c.; South America, 6.90c. prompt and 6.85c. for October delivery for the Continent. Pork—The export demand for pork is very light. We quote: \$10.25 for old mess; \$11@11.25 for new mess; \$9.50@10 for extra prime; \$13.50@14 for family and \$14.25@15.25 for short clear. Beef is more active and we quote: Family, \$8.50@9; packed in barrels, \$7@8; extra India mess, \$12.50@13. Hams are nominal at former quotations, \$20 here, and \$19 West and \$19.10 less for December. Bacon is in light export demand for forward shipment. Prices are unchanged, and are 7c. for spot and October short clear in Chicago; 6c. for November, and 5½c. for December, with half and half about ½c. less and bids ½c. less than asking prices. Cut Meats—Home trade is more active for prompt delivery. Green hams are quiet; 12-lb. rib bellies, loose, sold at 7½c. City cuts are all steady, 500 pickled shoulders selling at 6@6½c.; green city hams, 9c. here; 500 pickled hams, city, 10½@10¾c.; 300 smoked do., 11½c.; 25,000 lbs. 16-lb. green hams, Chicago, sold at 8c. spot, but were quoted 7½c. bid at close. The dressed-hog market broke 20c. per hundred in Chicago, owing to heavy supplies, closing dull and weak. Market here dull and easier. We quote: Bacon, 6½c.; 180 lbs., 6½c.; 160-lbs., 6½c.; pigs, 6½c.; fancy, 6½c.

Starch.—Western corn has been in good demand and prices have ruled firm. The quotations are 2½c. for bbls. and 2½c. for boxes. Potato is unchanged at 3¼@3½.

Stearine.—The market is lower. We note sales of Western at 7c. and Prime City at 7½c. Oleomargarine is held at 7c.

Sugars.—Raw—The market has been moderately active. Fair refining would not command better than 4 11-16c. at the close or centrifugal better than 5½c. for 96 test, although all quotations are nominal. Late sales were: Brazil, basis 83 test, 3 15-16c., ex-ship; centrifugal, 93 test, 5 1-16c.; Trinidad, P. S., 83 test, 4c. and concrete, 37c. Refined has not been particularly active, home wants being light and the foreign request careful. On export grades a fractional advance has been made, owing to the Treasury Department decision, which is as follows: "On all refined loaf, cut-loaf, crushed, granulated and powdered sugar, stove-dried or dried by other equally effective process, exported on and after November 1, 1886, drawback will be allowed at the rate of 2.60 cents per pound, less the legal retention of 1 per centum. The above rate is provisionally established in lieu of the existing rate of 2.82 cents per pound, pending an inquiry as to what further reduction may be necessary." The order is looked upon with disfavor by the trade. We quote for export: Cut loaf, \$3.52@3.59; Cubes, \$3.33@3.39; crushed, \$3.52@3.59; powdered, \$3.33@4.46; granulated, \$3.15.

Teas.—The tea market has been fairly active and prices are firm. Greens have been in good request, and desirable grades of Japans are firm. The prices of the closing auction sale were: Moyune—hyson, 9@19c.; imperial, 20@21½c.; gunpowder, 15@37c. Pingsuey—Young hyson, 15c.; gunpowder, 14½@31c. Japan—Pan-fired, 17@25½c.; basket do., 20½@29c.; siftings, &c., 10@16½c.; congou, 16½@39c. Oolong—Fochow, 15½@28c.; Formosa, 18½@21½c.; India and O. Pekoe, 18@20c.

Tobacco.—There has been a fair demand for Kentucky. The offerings in Western markets consist principally of low grades, with prices irregular and easy;

We quote: Common lugs, $3\frac{1}{2}$ @5c.; good do., $4\frac{1}{2}$ @6c.; common leaf, $5\frac{1}{2}$ @7 $\frac{1}{2}$ c.; medium do., $7\frac{1}{2}$ @9 $\frac{1}{2}$ c.; good do., $9\frac{1}{2}$ @11c.; fine do., $11\frac{1}{2}$ @13c.; selected, $14\frac{1}{2}$ @16c. In seed leaf we note sales of Pennsylvania Havana, crop 1885, $12\frac{1}{2}$ @17c.; Pennsylvania, crop 1883, $8\frac{1}{2}$ @11 $\frac{1}{2}$ c.; Ohio, crop 1885, and Pennsylvania, crop 1881, on private terms.

STOCK OF SPANISH TOBACCO.

	Havana.	Cuba.	Cienfuegos.	Yara.
Stock September 1, 1886.....bales.	43,611	100	.....	301
Received since.....	5,822	52	.....	.....
Totals.....bales.	49,413	152	.....	301
Delivered since.....	6,500	.....	.....	.....
Stock October 1, 1886.....bales.	42,913	152	.....	301

Wool.—The market has shown a goodly degree of strength, sufficient, at any rate, to resist the efforts of manufacturers to lower rates. Sellers are very firm, and are holding for an advance. We note sale of Texas at 26c., while San Antonio advances show the market for fall clip opening at 18@20c. The Boston market is active and firm, fine delaine selling at 39@40c., and No. 1 combing at 40c., closing at 42c. Late sales include: Scoured Texas, $57\frac{1}{2}$ c.; scoured medium Colorado, 54c.; scoured Texas, 55c.; Territory, 56c.; No. 1 pulled, 19c.; Texas, 26c.; fine foreign scoured, 65c.; spring California, 25c.; extra pulled, 35c.; scoured 30c., 40c. and 60c.; lambs' pulled, 38c.; fine scoured Texas, 62c.; Western Texas, $15\frac{1}{2}$ @16c.; scoured, 60c.; California, $21\frac{1}{2}$ @22 $\frac{1}{2}$ c.; scoured Cape, 72c.; merino Montevideo, 32c.

General Notes.

THE Mexican Congress have appointed a commission to study the silver question; also a special committee to study the question how to replace the State customs tariff with a system less burdensome to commerce.

A TUNNEL under the sound between Copenhagen and Malmo is projected, and the plans have been presented for consideration to the governments of Sweden and Denmark. The work would cost, it is estimated, about \$6,000,000.

THE French Minister of War desires a formidable appropriation for new explosive bombs and at a recent experiment exhibited a monster mortar to be fired by the use of a compound whose ingredients are secret, but possessing the best qualities of gun-cotton, without its defects, not being liable to spontaneous ignition.

Jerusalem! The American export trade is growing. The Cincinnati Corrugating Company has recently made a large shipment of its corrugated iron siding and packed standing seam roofing to the sacred city of Jerusalem, Palestine, Asia. Has some Yankee taken the contract to "boom the old town," or is the temple to be rebuilt? The Cincinnati Corrugating Company has reason to rejoice over this additional testimony of the appreciation of its manufacture, which is now become universal.

A BOSTON paper publishes statistics giving the relative annual growth of the wealth-producing capacity of the leading countries of the world, showing the United States to be far in advance of all others. The figures are: United States, \$825,000,000; France, \$375,000,000; Great Britain, \$325,000,000; Germany, \$200,000,000; other countries, \$725,000,000.

In this country the most celebrated artesian wells are those of St. Louis, Louisville and Charleston, S. C. The St. Louis well has a depth of 2,199 feet, and flows at the rate of seventy-five gallons per minute. That at Louisville is 2,086 feet deep, and flows 330,000 gallons in twenty-four hours, and the Charleston well is 1,250 feet deep, with a flow of 1,200 gallons per hour, and with a force equal to ten horse-power. There are a hundred artesian wells in Chicago.

YEARS ago the bonds of the United States were largely held abroad. The recent statement of the Treasury Department shows that of the \$1,011,222,062 of registered bonds outstanding only \$11,688,100, or less than 1 1-2 per cent., are in the hands of foreign holders. This fact not only shows the extent of the accumulation of wealth in the United States, but discloses one of the sources of our prosperity, the payment of over \$49,000,000 of interest money to our people each year.

THE Acting Secretary of the Treasury has instructed the Collector of Customs at New York, in explanation of the circular of September 28 reducing the rate of drawback on refined dried sugars exported on and after November 1, 1886, to 2 60-100 cents per pound, less the legal retention of 1 per cent., that in cases where the export entries are made in good faith and the sugar is actually laden on board the exporting vessels before the first of November next and the detention of the vessel is not due to laches of the exporters, drawback may be allowed at the rate prescribed. The former rate was 2.82 cents per pound.

CINCINNATI has been considerably excited for the past month in regard to a contest of sand-paperying machines, which has been in progress at the immense factory of the Robert Mitchell Furniture Company, in that city. Two rival concerns, one of them the Egan Company, of Cincinnati, each placed one of its 30-inch improved machines alongside of each other, and the one doing the best work and the most of it was to be selected. Both machines were handled by experts, and the decision was made awarding the prize to the Egan Company, its machine having done, it is said, both the best work and the most of it, and the other company was ordered to take its machine away. This is quite a triumph for the Egan Company, which has been doing a very large business on its sand-paperying machines of late, especially throughout the Eastern States, where the best machinery is wanted.

IN Lincoln County, Nev., on the Rio Virgin, there is a deposit of pure rock salt that is exposed for a length of two miles, a width of half a mile, and of unknown depth. In places cañons are cut through it to a depth of sixty feet. It is covered in some places by basaltic rock and volcanic tufa. The deposit has been traced on the surface for nine miles. It is so solid that it must be blasted like rock, and so pure and transparent that print can be read through blocks of it a foot thick. At Sand Springs, Churchill County, there is a deposit of rock salt fourteen feet in thickness, free from any particle of foreign substance, which can be quarried at the rate of five tons a day to the man. The great Humboldt salt-field is about fifteen miles long by six miles wide.

THE Vigo Bay Treasure Company is searching with improved diving-bells and machinery for treasure sunk on the coast of Spain in 1702. Hon. W. A. Redding, attorney of the company, who has just returned from Europe, says: "We have machinery by which we can bore down through to this bar, the drill running inside of a casing and the refuse brought to the surface. If it is wood we know it, and if it is stone we know it. When we have located the sunken ship in that way we use powerful hydraulic pumps, forcing a jet of water with tremendous power and tearing out and washing away the earth of the bar until the wreck is reached."

THE growth of Southern California is phenomenal. Its population is now estimated at 155,500, of which Los Angeles County claims 76,000, doubling the total given by the canvass of 1880. Agriculture is the great attraction. An orange grove of ten acres will yield an income of \$4,000 or \$5,000 a year in the course of ten years. The net profit of a vineyard in full bearing is not less than \$100 per acre. Raisins give \$300 per acre, net; strawberries, \$300 to \$350; other fruits, \$200 to \$300 per acre. The finest olives in the world can be raised with equal profit.

PROFESSOR WILLIAMS says in the *Organ des Mines*, regarding the projected paper-rail works at St. Petersburg, that the rails can be made at one-third the cost of steel rails, and that they are very durable, the paper being condensed by great pressure. Being lighter than metal, they can be carried and laid at far less cost. They are to be made in greater lengths than ordinary rails, and the oscillation and consequent wear and tear of rolling stock will be proportionately diminished. The success or failure of the project appears to be solely a question of durability.

NOT less than twenty distinct railways now run trains into Chicago. These roads aggregate 28,817 miles, of which number 656 miles is credited to the Baltimore and Ohio road west of the Ohio river. Nearly one-fourth of all the railway mileage in the United States is in the lines having terminals in Chicago. This would seem to afford a reasonable basis for the claim of a Chicago paper, that "no other city in the world has so many railroads or so great a mileage."

THE Government of India has discovered that to continue the exportation of wheat from that country may mean starvation to the inhabitants. With the supply from India curtailed or cut off, America is the principal source to which Western Europe can look for breadstuffs.

THE average capital expenditure incurred for the railways of England and Wales up to the end of 1885 was about £50,000 per mile; and the mileage added during 1885 entailed a lower capital expenditure per mile than the average, the amount being £47,100 per mile.

GERMANY was the first European country to recognize the importance of a certain amount of technical training for artisans and to provide for it. As a result, no European country has, during the past ten

years, made equal progress with that country in manufacturing. At the same time there are two purely technically trained students in Germany for every one that can find satisfactory employment.

THE Southern cotton mills have increased in number in six years from 161 to 310, and in production from \$16,387,598 to \$30,726,250, or 88 per cent. They have weathered severe storms, resulting from a too rapid growth, have secured new markets and are now exporting goods.

THE Secretary of State is informed that the Italian Government has issued a call for an international competitive trial of machine seed-sowers at Foggia, to begin on the 20th inst., and close on the 30th of November following. American machines should be sent from New York to Naples and thence by rail to Foggia.

THE Treasury Department ordered a drawback to be allowed on dairy pans and cups of imported tin plate equal to the duty paid on imported materials, less 10 per cent. The Acting Attorney-General decided that portions of an iron structure imported to be put together must be classified at the rate to which separate parts are liable, rather than rate on complete structure.

A VERY plausible explanation of the destructive fires that occur in pine forests is offered. The pine resin exuding from the trees is often of lens shape, and before it thoroughly hardens it is frequently of crystalline clearness. It is surmised that while in that condition, a resin lens may focus the sun's rays upon some light twig or resinous point and so start a blaze that quickly eats up a forest.

A COUNCIL of the Sioux Indians in Dakota has resolved to establish a mail and transportation route to all the chief frontier towns, the service to be performed by several hundred Indians on foot, harnessed to light vehicles. Every runner will be required to make three trips per week, a total of seventy-five miles in seven days. The loads for mail teams will be limited to 200 pounds and those for freight and passenger teams to 1,000 pounds.

THE first railway contract in China has been secured by an English firm. It is for the construction of a line between Tamsui and Keelung, in Northern Formosa. The order has been given to Jardine, Matheson & Co. The negotiations were conducted by Donald Spence, a British consular officer, whose services were lent by Lord Rosebery to the firm on account of his knowledge of the Chinese language and officials. A large contract for guns, also for Formosa, had previously been secured by the same firm. Charles Cammell & Co., Limited, of Sheffield, have recently booked two orders for steel rails for Japan, amounting in all to 20,000 tons.

THE coke and bituminous coal industries of Pennsylvania are the subject of a report by Joel D. Cammatt, chief of the Bureau of Statistics, in which he speaks of the importance of the revolution being effected in some localities by the introduction of natural gas. In Pittsburgh alone he estimates the saving in the consumption of coal at 3,000,000 tons per annum, and, including the saving of labor in handling coal and cinders about the mills and furnaces, the economical result is a reduction in the yearly cost of iron, glass, &c., equal to \$5,000,000. The manufacturing industries of Pittsburgh and Allegheny give employment to about 102,000 persons, receiving wages amounting to \$30,000,000 per annum, and the value of the yearly product is stated at \$182,000,000. The falling off during the past year in the production of coke in the Connellsville region is about 414,468 tons, due to labor troubles and efforts on the part of operators to uphold prices.

Catalogues and Price-Lists.

TO READERS.

THE Catalogues and Price-Lists herewith noticed are valuable for reference. In sending for such lists our readers should mention the date of issue and the page number of THE MAIL in which they are noted.

PHELPS & BIGELOW WINDMILL COMPANY, Kalamazoo, Mich., U. S. A.—Illustrated and descriptive catalogue of windmills and power wind-engines, pumps, feed-grinders, &c.

POLYGRAPH COMPANY, Philadelphia, Pa., U. S. A.—Illustrated and descriptive circular price-list of the polygraph or drawing instrument.

RHODE ISLAND HORSE-SHOE COMPANY, Providence, R. I., U. S. A.—Illustrated

and descriptive catalogue of patent machine-hammered horse and mule shoes, improved toe-calks, &c.

ARC SCALE-MANUFACTURING COMPANY, Davenport, Ia., U. S. A.—Descriptive and illustrated circular of scales.

BENTON, WALDO & Co., Milwaukee, Wis., U. S. A.—Catalogues and specimen-books of self-spacing type, printers' material, &c., profusely illustrated.

ROMER & Co., Newark, N. J., U. S. A.—Price-list and catalogue of bronze and iron padlocks and jail locks of every description, night-latches, rim-locks, railway-car door locks, lanterns, dash lamps and railway supplies.

MAST, FOOS & Co., Springfield, Ohio, U. S. A.—Illustrated catalogue of wrought and malleable iron fencing, balcony railings, &c., of elegant design and finish.

CHAS. A. SCHIEREN & Co., New York, N. Y., U. S. A.—Catalogue and price-list of leather belting, &c.

J. A. FAY & Co., Cincinnati, Ohio, U. S. A.—Large and handsomely illustrated catalogue of heavy wood-working machinery of improved design, &c.

SHEFFIELD VELOCIPED CAR COMPANY, Three Rivers, Mich., U. S. A.—Illustrated and descriptive catalogue of railway specialties, including velocipede hand-cars, section and telegraph hand-cars, stand-pipes, &c.

Business Notices.

BUYERS of farming-tool handles in European and colonial markets should note that those bearing the registered trade-mark "Piqua" are everywhere regarded as of superior quality. Only one factory in America has the use of the name, and experts are employed in the classification of the various grades.

THE American Steel Scraper Company, Sidney, Ohio, U. S. A., has recently begun work on a new and enlarged factory at the junction of the Dayton and Michigan and Bee Line railways. When completed it will be one of the largest scraper works in America. This company manufactures different styles of scrapers, which are regarded as standard.

BUYERS of building material are invited to correspond with the Cincinnati Corrugating Company, Cincinnati, Ohio, U. S. A. This company makes iron siding, roofing, ceiling, arches, lath, shutters and doors, and supplies estimates as well as material for metal buildings. It has lately filled an order for Palestine and its material is appreciated wherever used.

THE IXL windmills and power wind-engines manufactured by the Phelps & Bigelow Windmill Company, Kalamazoo, Mich., U. S. A., are in demand not only in the United States but in other countries. The features of strength, power and durability combined in these machines claim the attention of persons seeking this class of machinery. The company makes pumping and power mills and carries in stock all kinds of goods connected with their use, and parties needing water supply or power for running light machinery are invited to confer with the company and send for catalogue.

El gran éxito que ha alcanzado el reloj de Waltham, ha inducido á ciertos fabricantes á presentar al mercado un sin-número de imitaciones de aquel; y con objeto de engañar á los compradores han grabado en las tapas y planchas nombres ciudades Americanas, y firmas ó compañías de fábricas ficticias. Los que así recurren á estos pocos escrupulosos métodos para poder dar salida á sus productos, prueban concluyentemente con ellos la gran superioridad de los relojes de Waltham y el desmérito de sus propias obras. Los compradores deben por lo tanto tener cuidado de asegurarse que le marca registrada de la fábrica "Waltham." Este grabada sobre la plancha de relojes. Sin dicha marca ninguno es genuino.

J. A. J. CRAIG & Co., of Montreal, Quebec, Canada, have just fitted out one of the most extensive furniture factories in Canada. Mr. Craig has been for years in this business, and is one of the few men who have grown rich in making furniture. About a year ago he was burnt out, and has concluded to try it again. Mr. Craig came to the United States and bought a complete outfit of machinery from the Egan Company, of Cincinnati, Ohio. There is a duty of 25 per cent. on goods of this class going into the Dominion, but Mr. Craig (who, by the way, is an expert in machinery,) said that he must have the best, and left the order with this enterprising company. Three car-loads were sent and a few extra pieces loose. This makes one of the largest shipments in this line to Canada since the duty was placed so high. The Egan Company cites this as an instance of the high estimation in which its improved machines are held, and invites attention of buyers generally to its line of wood-working machinery.

AMERICAN MAIL

DEVOTED TO THE

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Engineering and Machinery.

The Perkins Windmill.

THE wind-engine illustrated is not a new machine, for it has been in successful operation for a number of years, receiving high encomiums from those who have had it in use. This engine is offered by its manufacturers, the Perkins Windmill and Ax Company, as embodying all of the improvements in machines of its class which experience has suggested are necessary. In the production of this machine the manufacturer has aimed to combine great simplicity, power and durability, and it is put upon the market as embodying these qualities. There are only three parts, the main casting, wheel and rudder, there being no iron weights, side vanes, governing balls, hooks or levers to regulate noticeable in other mills. The wheel is set at one side of the centre of the derrick or turntable, which takes the place of a side vane. The rudder is hinged with one long hinge (the lower) and one short hinge; this causes the rudder to rise at the outer end as it is folded or thrown out of gear, bringing the wheel edgewise to the wind, and by its own gravity to come back to position when the mill is put in gear, or to bring the wheel back to work when blown out of gear by the wind; the latter being accomplished in other mills by side vane weights, levers, balls, &c., in or attached to the mills.

The power of this mill, as well as of all others, is in the wheel. The duty of the rudder is to place the wheel squarely to the wind while at work, and the edge of the wheel to the wind when out of gear or at rest; and this is the feature of this machine. The wheel is so near the centre of the derrick, the rudder large, the turntable and spindle small and works so easy that the mill is always in position to get the most power out of the wind while at work, and for the same reasons while at rest is in position to stand the worst gale that comes. The power of the mill is due to two causes: First, the amount of wind surface in the wheel; second, in putting the wheel squarely to wind, no matter how light it blows.

The firm named manufactures a full line of pumping windmills, from 10 feet diameter wheel to 28 feet diameter wheel, also from 14

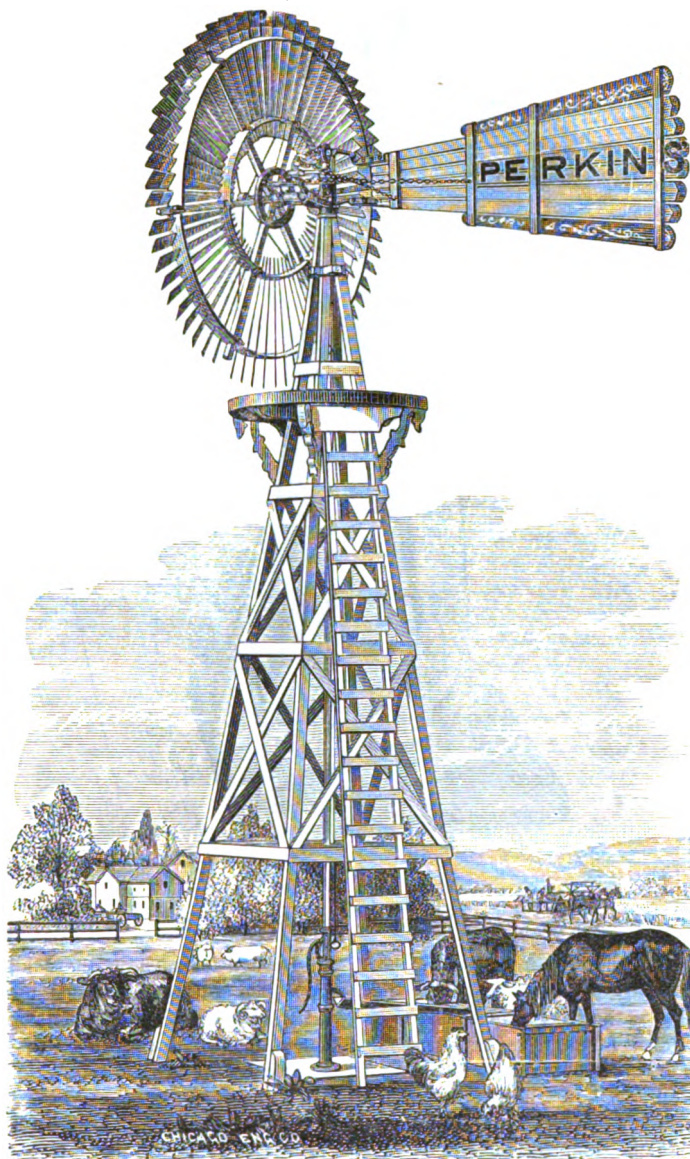
feet to 20 feet diameter wheel geared windmills, for grinding feed, shelling corn, &c. Further information can be had by addressing the company for catalogue, prices, &c.

Cylinder Boring and Facing Machine.

THIS machine is designed for new work in shops. It will bore from 8-inch to 22-inch cylinders, facing off the ends and boring at the same time. The flanges are turned afterward, as the saddle to

which the cylinder is fastened has a movement of several inches either way (a bent tool is placed in the facing-head and the cylinder is moved). The V's which hold the cylinder are independent of each other, each adjusted by a separate screw, allowing any shaped cylinder to be quickly brought central. Any kind or shape of saddle for different kinds of work to be done in duplicate can be bolted on to them, gaining time thereby. The saddles are held firmly to the bed of the machine by eccentrics with handles while boring and facing. They are also held in position by gibbs which allow them to slide while turning the flanges, the sliding being done by a large hand-wheel at the front end of the machine. The cross-feeding on the slide-rest for facing is fed with a star wheel operated by a little device which slides on the top flange of the bed and has pins, by turning which half way round feeds either in or out—so that a roughing cut can be taken one way and by reversing the finishing cut can be taken. By simply unscrewing one screw the bar can be pulled out of the way and supported until the cylinder is placed in position. The bar is then slipped in the other bearing and the cylinder is set true with the bar. The clamping device, one of the novel features, is a detachable link chain which can be lengthened or shortened, holding the cylinder and allowing very little opportunity for springing. The saddles of the machine have each a T-slot in them to slip bolt-heads into for fastening the work to them.

By taking out three cap-screws the V's can be taken out and the saddles brought together so as to form a level bed 30x24 inches for any kind of boring and facing, such as pedestals, &c. The feed-casing contains gearing that admits of several changes of speed and of feeding either way to suit the work. This gearing is driven by a four-step cone pulley.



THE PERKINS WINDMILL.

Improved Fret-Saw.

AN illustration is given on this page of an improved and newly-designed pedestal column fret-saw, with tilting-table, which is manufactured by the Egan Company, which has acquired a reputation for fret-saws, there being over 10,000 of its fret-saws now in actual use. The company claims this machine eclipses all of its former efforts, and that it is superior in the following points: 1. The improved patent strain is more perfect, and, having a differential traveling pulley, requires only a movement of five-eighths of an inch on the point of spring to give the saw the full 4-inch stroke. 2. It is noiseless and makes no jar (having such small movement), and it can be run in upper stories without the slightest inconvenience. 3. The frame is a pedestal and is cored out, and stands on a large base. 4. The table can be tilted either way to any angle. 5. The combined shifter and brake acts in a very perfect manner, and both shifts the belt and stops the motion at the same time. 6. The strain can be increased or diminished at will of operator. 7. The speed of changing from inside to outside work is very quick, there being no screws or bolts to loosen.

The machine in all of its parts is perfectly fitted, and is said to be built in the most improved manner, the material used being the best. It is recommended by its manufacturers for all kinds of fret-sawing, either heavy or light, and car and wagon shops, furniture factories, carpenters, planing mills, and others requiring a first-class machine to do the best work and stand up to heavy wear. The 6-inch T. & L. pulleys should make from 1,300 to 1,400 revolutions per minute.

Railway-Switch Stand.

AN improved railroad-switch stand, of simple, efficient and inexpensive construction, is designed to shift and lock the switch at will, and at the same time provide means for automatically locking it into the position to which the movable rails may be thrown. On a base plate are secured two standards, one having a circular and the other a square aperture, and through the latter is passed a squared neck that projects from a toothed clutch disk. This disk and the neck are provided with a tubular bore, through which the rounded-end part of the shaft is passed. On the squared part of the shaft a clutch disk is mounted, to turn with the shaft, the teeth of one clutch disk interlocking and engaging those of the other. A spiral spring surrounds the shaft and rests with one end against the upper disk, pressing it against the lower disk, the other end of the spring resting against a neck of a collar mounted to turn in the circular aperture of the standard. On the flattened portion of the shaft the forked end of a lever is pivoted, the ends of the prongs being rounded to form cams that can act on the face of the collar. On the end of the flattened portion of the shaft is a prong on which the lever can rest when swung down. On the upper end of this flattened portion is an eye for receiving a pin for locking the lever in place when swung down. An arm is mounted on the end of the shaft and is connected with a rod for throwing the switch tongues. The operation of this switch

stand is as follows: When the switch is locked the lever is swung down and the shackle of a padlock is passed through the eye, thus keeping the shaft and lever in line. As the ends of the forked lever rest against the collar, they keep the spring in tension and one disk is pressed against the other. When the switch is to be thrown the lock is removed, the lever swung up into position, and the spring forces back the neck and collar. The lever is then swung to the right and the shaft is turned and swings the arm to the right or left and operates the rod. The upper clutch disk is turned with the shaft and the other remains fixed. The teeth of the upper clutch disk slide over those of the other disk and lock the parts in place as soon as the lever is released. The lever is swung down and its ends come in contact with the end surface of the collar and press it and the neck in the inverse direction, and the spring is compressed and presses one disk firmly against the other. Then the lever is locked in place by means of a lock. When the lever is swung down and locked the shaft cannot be turned, as sufficient leverage cannot be obtained, the tension of the spring being so great as to make it impossible to cause the teeth of one disk to slide on those of the other. When the handle-lever is raised the tension on the spring is removed and the long arm can be used to turn the shaft.

Traverse Shaper.

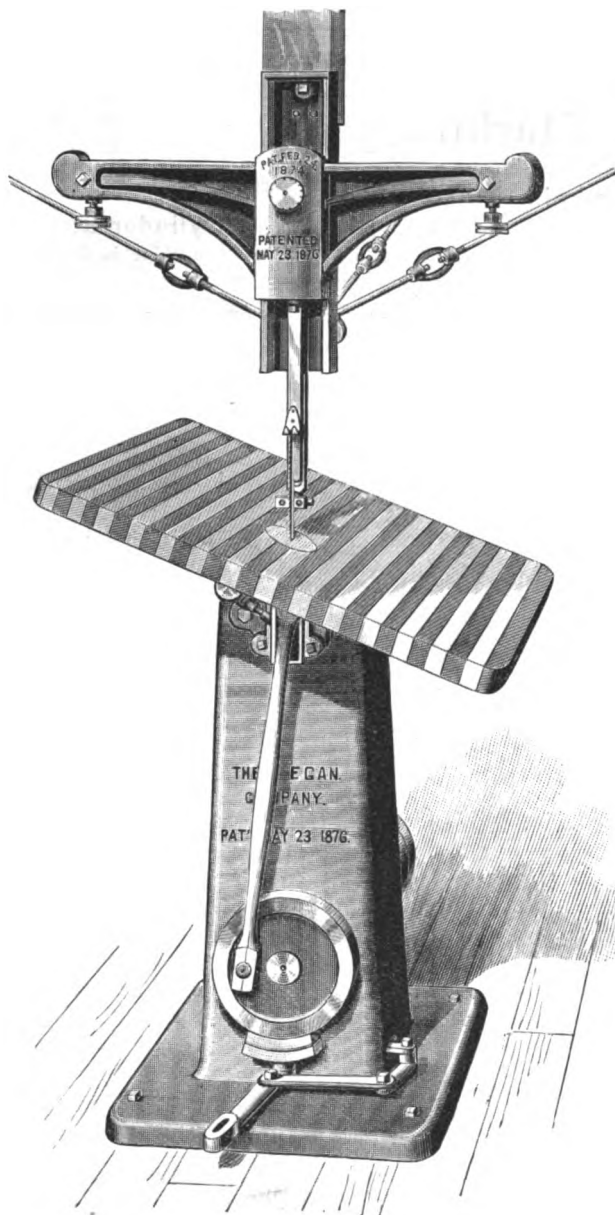
A NEW twenty by sixty inch traverse shaper is designed for all classes of light and heavy machine work. It has a stroke of 20 inches and a traverse of head of 60 inches. The length of stroke can be changed while the machine is in motion, thereby making a direct saving in time over a crank machine. The machine has automatic feed in all directions; it also has a circular feed, and a circular arbor can be used with the cones for hollow work or centres, the same as planer centres may be used to carry a common lathe arbor. The bed of the machine is made very deep, giving support to the tables low down, thus making the tables steady under the most severe cuts.

One of the tables has a patent adjustment for planing work on a taper. The table can be removed

and worked fastened on the saddle or tables, and saddles can be run off the bed and work fastened directly to front of bed or on the floor. A hand-wheel on the top of the saddle gives ready means of setting the cutting-tool to the work without the operator going to the end of the machine to turn the screw. The weight is 6,700 pounds.

Shaft-Press.

A SHAFT-PRESS just introduced is intended for use in straightening shafts. It consists of a heavy bed on wheels, carrying a steel screw, provided with a lever and supported on spools retained by bolts. This makes a powerful press and requires only three men to operate it. This machine is so adapted that an ordinary shaft can be trued up without leaving the machine. This is done on end rollers whereby an operator is enabled to put a shaft in shape without the use of a lathe.

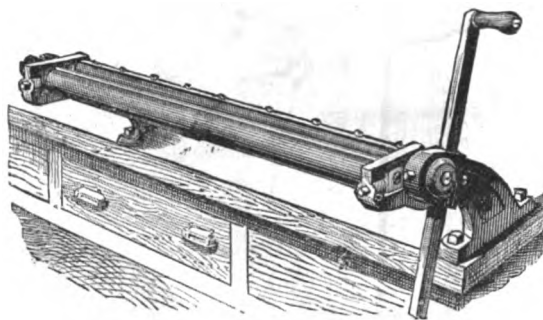


IMPROVED FRET-SAW.

Roach's Patent Folder.

IN the manipulation of sheet-metal many improved devices have been brought out for the purpose not only of facilitating labor, but also for doing better and more finished work. Among these improved appliances is Roach's patent folder, which is made by the Rothweiler Manufacturing Company.

This machine, which is herewith illustrated, differs from other machines in that it has a-reciprocating motion. In operation the blade bar and bending bar (in all other machines the bending bar is stationary) meet one another half way, working by means of segment cogs. This motion has the desired effect of holding the metal in position beneath the blade, doing away with an extra clamping motion. Another attachment, which well adapts the machine for roofing tin, is the radial slot at the left for receiving a stop-bolt, to be used in turning the second or traverse locks. A stout pin is fitted in the bottom of the blade bar in line with the stop-bolt, the stop-bolt being movable in the radial slot. In folding roofing tin the operator should turn the first pair of reverse locks on all, then adjust the stop-bolt so that in turning the traverse locks he does not mash the first locks. The machine turns the sheet and releases it the instant the lever is thrown back. The gauge is stationary, being made for a standard lock $\frac{3}{8}$ -inch wide, thus avoiding the trouble and mistakes caused by adjustable gauges.

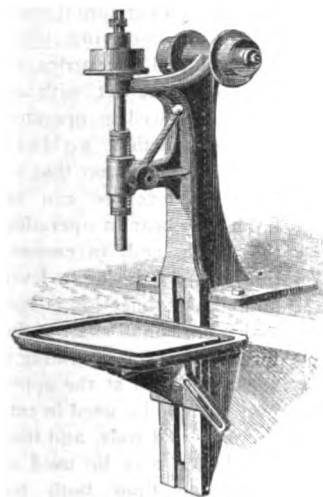


ROACH'S PATENT FOLDER.

Máquina de Doblar Patente de Roach.

ES máquina para doblar planchas metálicas y difiere de todas las demás máquinas de su clase en el movimiento de vaiven que tiene. Cuando funciona, la espiga de sonda y barra de doblar (en todas las demás máquinas la barra de doblar es estacionaria) se encuentran á medio, camino, funcionando por medio de engranaje segmental.

Este movimiento tiene por efecto precisamente lo que se necesita, puesto que mantiene la plancha metálica en posición debajo de la cuchilla y sustituyéndose con él la moción de empalmar. Otro accesorio que adapta la máquina perfectamente para hojadelata de techar, es la muesca radial á la izquierda en la cual cabe el reten que se usa para hacer girar los cerrojos de traviesa. Una clavija de gran resistencia está asegurada en el fondo de la espiga de sonda paralelamente con el reten, siendo móvil éste en la muesca radial. En cuanto se trate de doblar hojadelata, el operador debe dar vuelta al primer par de cerrojos reversibles, luego despues ajustar el reten, para que, al dar vuelta á los



NEW LIGHT BENCH DRILL.

cerrojos de traviesa, no eche á perder los primeros cerrojos. La máquina imprime un movimiento giratorio á la plancha, aflojándola tan pronto como se trastroque la palanca. En calibre es estacionario, estando hecho para cerrojos normales del ancho de $\frac{3}{8}$, con lo que se evitan el trastorno y asimismo los errores que causan los calibres ajustables. Los fabricantes de esa máquina son The Rothweiler Manufacturing Company.

Die Roach Patent Faltmaschine.

DIESE Maschine unterscheidet sich von allen anderen ihrer Art dadurch, dass sie beim zusammenfalten von Metallplatten eine Reciprobewegung erhält. Wenn die Maschine im Gange ist, so begegnen sich Contremesser und Biegestange auf halbem Wege (bei allen anderen Maschinen ist die Biegestange unbeweglich), und wird sie dabei durch Zahnradkranz in Bewegung gesetzt. Diese Bewegung bewirkt, dass gerade Dasjenige erreicht wird, was man beabsich-

tigt, das nämlich die Metallplatte unter dem Messer still gehalten wird, wodurch man der Hirnleisten-Bewegung entbehren kann. Ein anderes Anhängsel, welches die Maschine bei Blech zum verdachen sehr verwendbar macht, ist die Radialführung an der linken Seite, welche den Sperrbolzen aufnimmt, dessen man sich bedient, um die zweiten oder Reversschlösser zu drehen. Ein starker Bolzen ist am Boden des Contremessers angebracht auf einer und derselben Linie mit dem Sperrbolzen, indem letzterer sich in der Radialführung bewegen kann. Beim zusammenfalten von Blech sollte der Arbeiter das erste Paar Reversschlösser umwenden, alsdann den Sperrbolzen anpassen, damit beim Umdrehen der Querschlosser er die ersten Schlösser nicht vernichte. Die Maschine wendet die Platte um und lässt sie frei so wie man den Hebel zurückwirft. Die Lehre ist eine feste, und ist auf $\frac{3}{8}$ normal Schloss eingerichtet, wodurch man all die Mühe und Irrthümer vermeidet, welche bewegliche anpassbare Lehren mit sich führen. Die Fabrikanten dieser Maschinen sind die Rothweiler Manufacturing Company.

New Light Bench Drill.

THE bench drill herewith illustrated has been lately brought out. It is designed to be fastened to the edge of a bench or table, as shown in the cut. There is another style of the same drill, made to be fastened to the wall or a post. The spindle is driven by a $1\frac{1}{4}$ -inch belt direct from the countershaft. These tools are especially adapted for drilling small work, up to 5-16-inch hole, in large quantities, as required in light manufacturing, and permit of grouping a number in very small space, in which case they are driven from one long shaft with friction-clutch pulleys. The table is provided with a fixed wrench for adjustment. There is an adjustable stop on the upper end of the spindle to regulate the depth of hole. The countershaft accompanies the drill. It weighs, when complete and boxed, about 150 pounds.

Corn Sheller and Separator.

AN illustration is given of the improved Burrall patent corn sheller and separator, which is made by the Goulds Manufacturing Company.

Many styles of corn shellers are in the market, more or less efficient in their operation and differing in their characteristics. But the Burrall sheller combines features which do not exist in other machines of this class, and for this reason the Goulds Company presents it as a sheller pre-eminently adapted to the requirements of parties who have occasion to use shellers. This is a right-handed sheller, made entirely of iron and very durable; it shells and separates perfectly clean either large or small corn, an advantage which will be appreciated; there are no outside gears and its parts do not clog; in case of necessity any part can be duplicated at a small expense, thus saving the cost of a new sheller should any accident happen which will involve repair. The Goulds Manufacturing Company is the sole manufacturer of the genuine Burrall sheller.



CORN SHELLER AND SEPARATOR.

A NEW corn-harvesting machine has a stalk-cutting mechanism and an open endless stalk carrier combined with an ear-cutting mechanism for severing the ears from the stalks, the machine being designed to cut the stalks, separate the ears from the stalks and husks, and deliver the husked ears into wagons drawn at the sides of the machine.

Pacific Patent Planing and Matching Machine.

ONE of those wood-working machines which challenge the admiration of mechanical experts and intelligent critics is illustrated in the engraving on this page. The machine is manufactured by J. A. Fay & Co., and is known as a single cylinder, four-roll, No. 2½ Pacific patent planing and matching machine, with forged steel slotted cylinder and patent drop matchers. It was designed for a special purpose, but commanded such attention that it is now built as a standard machine and commands a wide popularity. It will surface to twenty-four inches wide and dress to six inches thick and will tongue and groove to sixteen inches wide; it is also adapted for working special classes of moldings. It is made with either one or two cylinders to dress one or two sides as may be desired, which are made of forged steel, and slotted on all four sides for the accommodation of different lengths of knives. It has a patent drop matcher attachment, by which means the whole matching works, arbors, heads, &c., can be almost instantly dropped below the line of the cut, when it is desired to surface up to twenty-four inches in width. The hangers carrying the matching arbor and heads are adjustable laterally across the bed, which distributes the friction of the lumber on the bed-plate, and prevents unevenness of wear. The matching-heads are of gun-metal fitted with steel screws and run on heavy steel arbors. The feed-rolls are six inches in diameter, connected by heavy gearing, and for different thicknesses of lumber are geared expansively to open up to six inches. They are heavily weighted and yet flexible, to accommodate any inequalities in the lumber. The patent weighted levers are inside of the frame and move with perfect freedom. The feed of the machine is very powerful, the rollers being large, and the belting, gearing and weighting being so proportioned as to allow no slipping. The cylinder for top planing is carried in heavy boxes, planed to fit to stands cast solid to a bed extending across the machine. The pressure-bar before the cutter is arranged to swing from the cylinder, so that there is always a pressure close to the knife, which prevents tearing out. The pressure-bar, both before and after the cut, is adjustable to and from

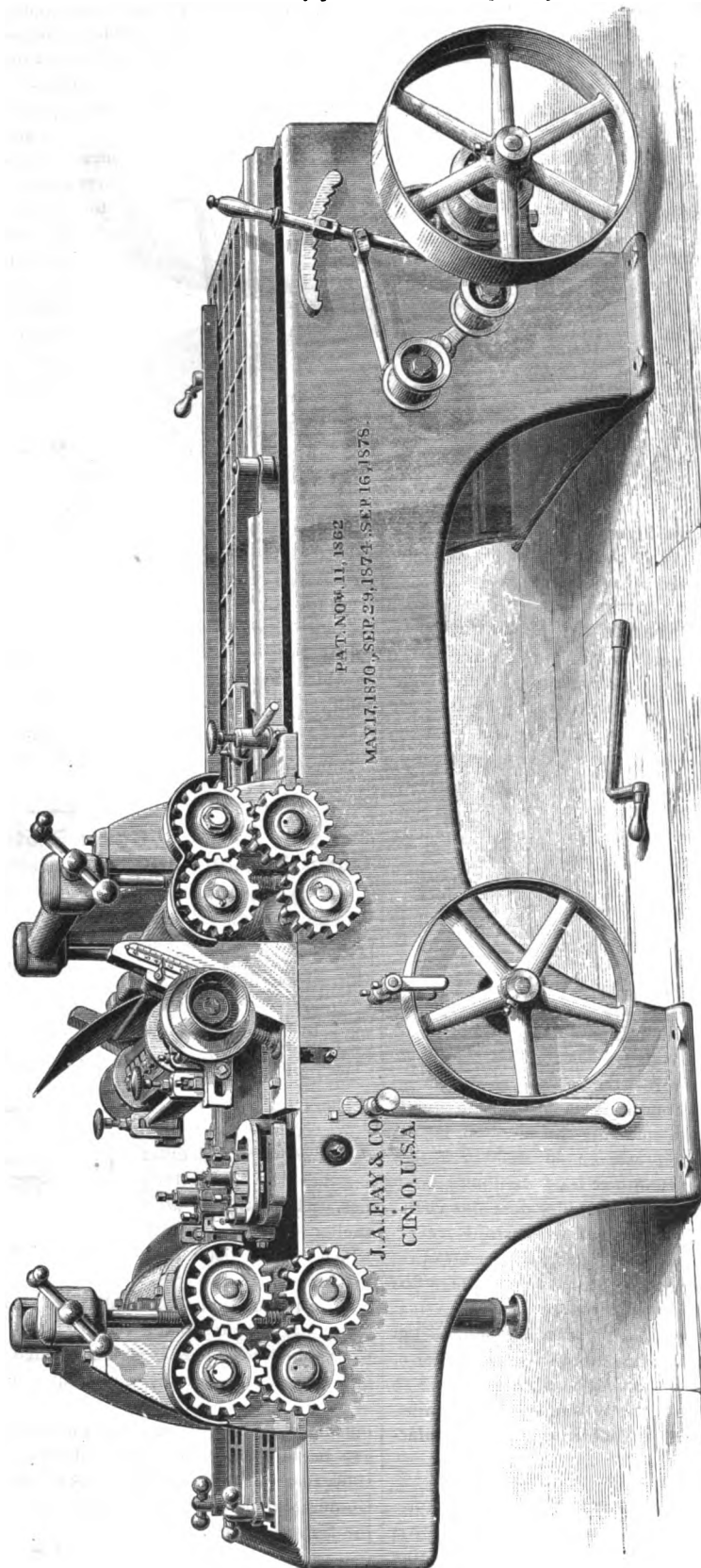
the cylinder, to make room for molding, rustic and drop-siding cutters. The lower cylinder, when furnished, has its bearings in a connected frame cast in one piece, adjusted vertically by two screws operated by connected gearing. It is slotted on all four sides, has large steel arbor

and pulleys for two driving belts, is easy of access, and the bars, like the upper cylinder, can be adjusted to and from the cut. The plate under the upper cylinder can be removed for replanning or renewal when worn out of line. The patent matcher clip, an important improved feature, is adapted to this machine, and in such a position that a deep rabbet can be made for drop siding. It is furnished with a double belt-tightener, patent solid milled cutters and pulleys for changes of feed. All bearings are arranged with large oil cavities, to insure perfect lubrication and every part constructed in the most perfect manner. The countershaft has tight and loose pulleys, 12x8 inches, and should make 900 revolutions.

Punch and Shear.

A NEW punching and shearing machine consists of a horizontal shaft having an operating lever attached and eccentrics so disposed as to act with an adjustable wedge operated between friction rollers above the punch, so that an immense leverage can be brought to bear in operating the punch, and, in connection with the device, a lever and crank connection is had with a horizontal shaft at the forward part for operating a shear and lever at the upper part so as to be used in cutting bars and rods, and thus the device may be used at the same time both for punching and cutting. It has a great advantage in the great power it develops. The principle of the wedge as applied in this machine gives a power practically unlimited, and the same combination can be applied to many other useful purposes. This machine is adapted to any ordinary work, from a tinner's shop to a steel-rail mill. No momentum weight

is required, this being perfectly substituted by the lever. As an example of its power one was recently constructed which weighs only fifteen pounds, and will easily punch ¼-inch buggy tire with the weight of one man. In a boiler shop this machine becomes the means of saving an immense amount of time, both in shearing and punching.



PACIFIC PATENT PLANING AND MATCHING MACHINE.

Hardware.

The Indestructible Coat and Hat Hook.

AN illustration is given of what is known as the Indestructible coat and hat hook, a new and useful device, which is made from steel wire and will not break like cast hooks. The hook is perfectly smooth and is strong and durable. The screws are packed with the hook, so that when purchased it is ready to be put up. This and other wire specialties of new design are meeting with a ready sale, and it is said to be the aim of the manufacturers to produce only articles which shall establish themselves in popular favor and retain it in demand.

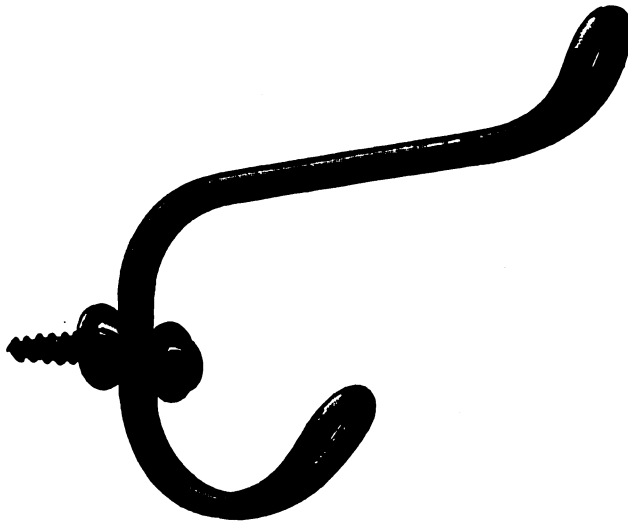
Patent "Jump-Seat" Irons.

CARRIAGE and wagon irons have become special lines of production in the United States. This method of making wagon fittings has its advantage, for it brings to bear more skill, inventive ability and mechanical precision than where irons are forged as wanted, and are thus made necessarily devoid of the finish and adaptability which skill and experience have secured. In the accompanying cuts illustrations are given of the "National" jump-seat irons, as manufactured by the Anderson Manufacturing Company. These irons are adapted to first-class work; they are sufficiently strong to have the top attached to the back seat, as they are thoroughly braced, which prevents twisting while being shifted, and with the angle-leg prevents the seat from settling; the back seat does not limit the length of the front seat. The front seat can be made six to eight inches longer than the back seat in bodies which have swelled sides, and by fitting a piece of hardwood about five inches wide and five-eighths of an inch thick between lugs under front seat makes it well braced. Seats can always be shifted forward and back without removing the cushions, and cushions are not injured by the back seat coming in contact with them.

Self-Feeding Hammer.

THIS consists of a device, in connection with an ordinary hammer, that separates and feeds nails, and sets and drives them by the swinging motion given the hammer. It holds about one pound of

hammer when suitably swung or raised and brought down for the purpose on the nail head. When the device is operated to pick out and deliver a nail, a pendent clamp pivoted to one side of the frame is extended below, so as to come immediately in rear of the hammer head, or a fixed grooved clamping-piece and guide are adapted for the delivered nail to permit it to fall in place for setting it in the work. This clamp has a tension controlled and closed upon the nail by a spring. The clamp may be opened or drawn back against the tension of its spring to receive the nail by operating it either directly or through its



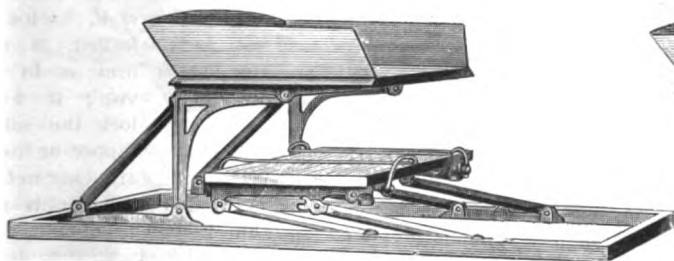
INDESTRUCTIBLE COAT AND HAT HOOK.

spring, which may be adjustable by a screw having a projection on a trigger, so that on pulling back the trigger the clamp is opened or removed to receive the nail, and on releasing the trigger it is thrown forward by its spring to clamp or hold the nail while being set. This lower tension applied to the clamp is sufficient to hold the nail while setting it in the work by throwing or driving the hammer as it holds the nail; but by jerking the hammer upward again the clamp is released from the nail thus stuck into the wood—or, in other words, the spring clamp slipped from off the stuck nail—after which the nail may be driven home by striking it on its head with the hammer head. This hammer is especially adapted for use in shingling, as it can be employed to advantage when the person is required to

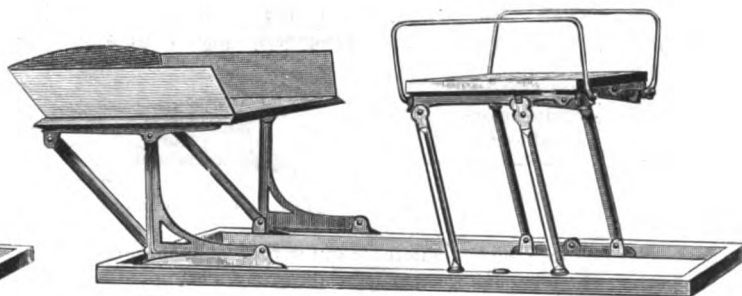
wear mittens on account of the state of the atmosphere. This is a consideration of no small importance, as shingling is very unpleasant work in cold weather when the hands must be kept uncovered. It is claimed that at least one-third more shingles can be laid by its use than is possible by the old method.

Bevel Protractor.

THIS article is designed to meet the demand of tool makers and machinists for a light, convenient and accurate instrument for obtaining and transferring angles. Its blade swings between the two working faces of the head or stock, and when clamped at any degree the angle may be set off to the right or left without any further adjustment by simply turning the tool over. By means of the index point and divided quadrant the blade may be set at any angle from 0° to 90°, and firmly clamped. The blade slides its full length on the working face of the sector, thus giving a long bearing surface and not liable to



"NATIONAL" JUMP-SEAT IRON ARRANGED FOR ONE SEAT.



"NATIONAL" JUMP-SEAT IRON ARRANGED FOR TWO SEATS.

nails thrown in promiscuously, and is designed to be used in all places where rapid nailing is required, such as shingling, lathing, nailing boxes, and a smaller size for upholstering, tacking down carpets, &c. In this hammer is combined a receptacle for carrying nails; a hammer head beneath; a feeding incline or duct for the nails from the receptacle; a device for clamping or holding each separately-delivered nail before setting and driving it, and a handle at right angles to the hammer head. By these means the swinging motion of the hammer is made to automatically feed the nails, one by one, to the clamping device, and on release of the clamp which holds the nail in position for being set and driven, the nail may be driven home by the head of the

wear. The blade may also be drawn back, leaving the face of the head clear for use on surface plates, and on platens of planers for setting the head at any angle. An extra blade three inches long and brought to a point by beveling off one side at an angle of 30°, is included with the tool, and is convenient for inside dovetailing. Instead of setting the index point at the centre of the division mark, this tool is adjusted so as to show the full size of the mark forward of the index. The quadrant is divided to degrees. This tool is made entirely of steel, bright polished all over, weighs four ounces, and is made in two sizes, 6 and 9 inch, which are furnished either polished or nickel-plated.

Wrought-Iron Barn-Door Hanger.

THE barn-door hanger illustrated has been manufactured to meet the large and increasing demand for a wrought-iron hanger. As its name implies, it is made of wrought-iron, with finished chilled bearings and wheels turned perfectly true, insuring very steady and noiseless action. A valuable feature is the small friction-roll, which will be noticed in the cut and which effectually prevents any side-friction.

Being strong, durable and cheap, and so constructed that it cannot get off the track, the general excellence and simplicity of application

of this hanger will, it is believed, commend it to all.

The manufacturers have endeavored to overcome the objectionable feature of barn-door hangers running on a wood track, *i. e.*, the difficulty of obtaining well-seasoned lumber, and the expense attending the sawing out of the same for one or two sets of hangers only, and they furnish track with brackets for putting up, which overcomes this objection.

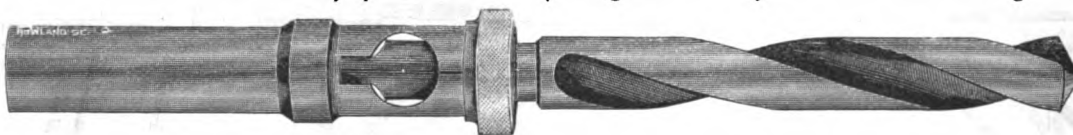
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Forged Twist Drill and Chuck.

A NEW line of twist drills are forged from round steel rods by a process invented by John F. Strange. Instead of being made by swedging straight grooves into round rods and twisting them afterward, these drills have the grooves forged in the form in which they are turned out without twisting the rod. This is accomplished by a simple mechanism applied to an ordinary trip-hammer, the operation being thus described: The heated rod is placed cross-wise under the hammer, and is kept from rolling by guides on the anvil. The twisted grooves

are made by a diagonal peen on the anvil at a sharp angle with the rod to be forged, and a similar peen on the hammer set at the same angle in the opposite direction. The hammer and anvil have hollow swedges also, in which the rod is occasionally placed for a few

blows to keep it straight, round and of uniform size, the process of forging the grooves having



THE "STRANGE" FORGED TWIST DRILL AND CHUCK.

a tendency to enlarge the circumference of the rod. The forgings are made in pieces long enough for two drills, the grooves being put in the central portion of the rod, and after it is cut in two the ends form the shanks of the drills. This process of manufacture is claimed to insure perfect uniformity and regularity of twist, while especial attention is called to the fact that the cutting edge of the drill is on the hammered surface, and that at the point of the drill also the effects of the hammering are secured, thus giving exceptional durability to this part. The process of forging the drills is rapid, and it is said that large twist drills were never turned out before by any method so fast and with so little labor. After the forging is completed and the drills are cut separate, they are ground by a process in which they are slowly turned while in contact with the stone, to insure a perfectly cylindrical drill, and to prevent binding and choking when in use the outside surface behind the lip of the cutting edge is further dressed off with an emery wheel. Two sides of the shank end of the drill are then milled off flat,

so as to make the end fit the chuck, which is also manufactured by the company and is represented in the illustration. The drills are regularly made with straight shanks, as shown, but are made with taper shanks, if ordered, to fit any socket desired. The drills which have been thus far made have been three-quarter inch and larger, the manufacture of the smaller drills not having yet commenced. Owing to the cutting edge of the drills being formed on the hammered surface of the groove, which has not been strained by twisting after having been forged, it is claimed that the drills will perform more severe work than other drills on the market, boring the most refractory metallic surfaces, like chilled iron, for instance, with ease.

The chuck is also shown in the illustration, from which its construction and special features will readily be inferred. It will be observed that the tang of the drill shank fits into a socket, and that the drill is held in place by a pressure applied by means of the sleeve on the slotted jaws of the chuck. The chuck is made with blanks for fitting to the screw of the lathe spindle or to an upright milling machine. Two sizes are made, No. 1 holding all sizes of drills from three quarter inch to one inch, and No. 2 all sizes from one inch to two inches.



NEVERSLIP HORSESHOE.

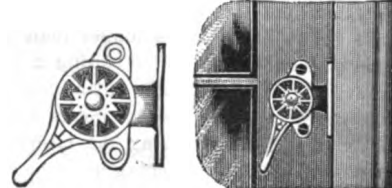
The Neverslip Horseshoe.

AN illustration is given of the Neverslip horseshoe, which is designed to meet and overcome the evils of the ordinary shoe. Its characteristic feature is the patent removable steel-centred and self-sharpening calks. These calks are made of a core of steel within an outside of iron. The core thus wears longer and the calk is self-sharpened. The calks are screwed into the shoe at toe and heel. Where a smooth shoe is desired button-headed calks are used, with the calk-holes countersunk. This shoe never slips; it avoids frequent resetting, lessens the danger from calking and the calks are easily adjusted.

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Safety Sash Lock and Fastener.

ONE of those neat little devices which fit into places where they are just wanted is to be found in the "Champion" combined safety surface window-sash lock and fastener, of which illustrations are presented. These show the design and method of application. The features of this fastener are the following: It does away with the incessant rattling of the window, as the



Detached. Showing Window Locked
CHAMPION SASH LOCK AND FASTENER.

sash, when locked, is as firm as in a vise; it will lock the sash (upper or lower) securely, at any desired point, affording an excellent and safe means of ventilation; by a simple pressure against the sash, when locking, it acts as a weather strip, and keeps out the dust and cold air; it is neat in appearance, easily put on, cannot get out of order and does not damage the finish on a window; it is cheap, simple, durable, made of malleable iron, has no springs, and can be used on old and new windows, with or without weights.

A CONVENIENT garden tool is to be found in a combined spud and rake. It consists of a shank having a spud formed upon it with an ear near the junction of the blade and shank; the shank of the rake is pivoted to the ear, so that the rake can be folded back out of the way of the spud. When the rake is unfolded, it may be employed in the same manner as an ordinary rake, and when it is folded back against the shank it permits of the free use of the spud. This tool is said to be light, durable and efficient in operation.

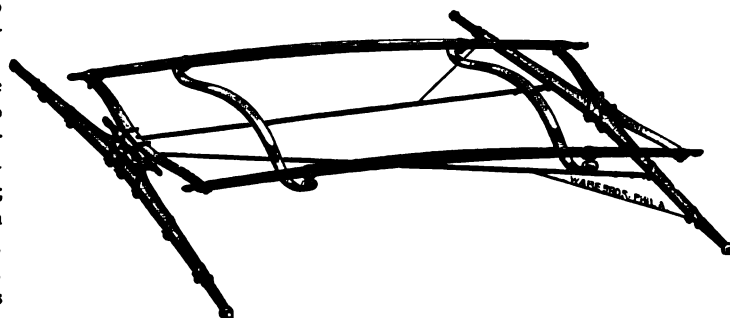
Carriage Gears and Bodies.

MUCH study has been given to the manufacture and perfection of carriage gearing in the United States and the result has been that American forms of gearing have been adopted and used in almost every country in the world where carriages have become articles of ordinary use. And in the manufacture of carriage bodies the woods of this country afford the best material which can be applied to their production. In this line of manufacture J. L. Spencer & Co. have established a reputation, and in the different engravings presented on this page will be found illustrations which will serve to convey a fair idea of their products.

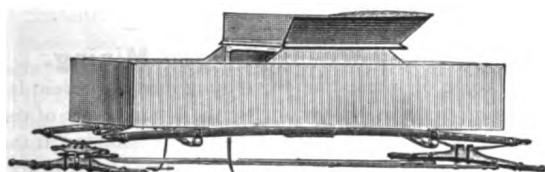
The gearing No. 12 is made with $1\frac{1}{4}$ -inch oil-tempered two and three leaf or three and four leaf springs, second-growth hickory side-bars, with rub-irons; that shown as No. 13 has $\frac{7}{8}$ -inch fan-tail, double collar, steel axle, oil-tempered Brewster springs, second-growth hickory side-bars and reach. No. 16 illustrates a piano, Corning or Whitechapel body, same gearing as No. 13, with seat, dash, toe-rail and steps, complete; No. 17 is a piano, Corning or Whitechapel body, with Timken springs, $\frac{7}{8}$ -inch fan-tail, double collar, steel axle, dash and toe-rail complete; No. 19 is a two-seat piano or Surrey body, with dash and toe-rail, Timken or Brewster spring, inch fan-tail, double collar, steel axle. No. 35 is a piano body, with dash, toe-rod, $\frac{7}{8}$ -inch fan-tail,



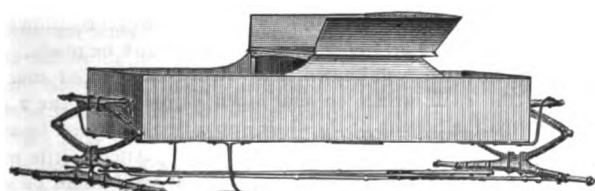
No. 12.



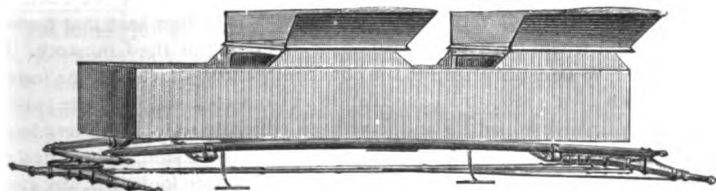
No. 13.



No. 16.



No. 35.



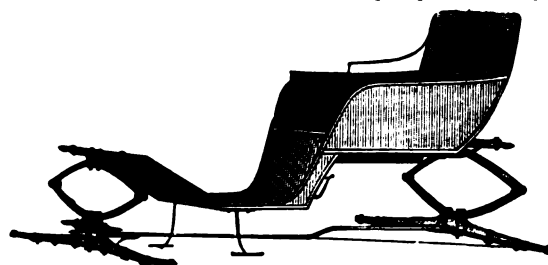
No. 19.

double collar, steel axle and elliptic springs; No. 37 is a two-spring phaeton body, with $\frac{7}{8}$ -inch fan-tail, double collar, steel axles, with dash and toe-rod; No. 38 is a piano body, with seat, dash-rail, $\frac{7}{8}$ -inch fan-tail, double collar, steel axle and Mulholland spring.

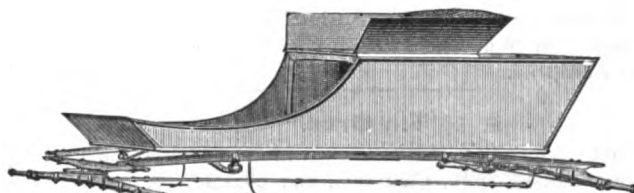
A NEW form of wrench is provided with a fixed and a movable jaw, a locking lever and other features which adapt it to gripe and turn square or round objects of different sizes, as nuts or pipes; it is also adapted for use as a vise.

Improved Pump.

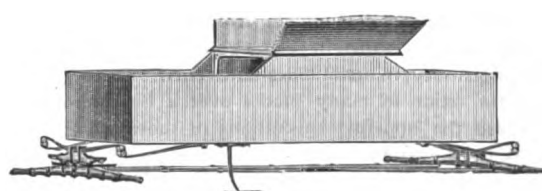
THIS is an improvement in "diaphragm pumps." The advantage of a diaphragm in place of a sliding piston to carry the valve is that the piston must be provided with a packing, which slides back and forth in the pump barrel and soon wears away sufficiently to cause it to leak, and to replace the packing requires the services of an expert. The diaphragm, on the contrary, has no frictional contact to cause it to wear out, and it only deteriorates from the interfriction of its own fibres. When it requires replacing, it can be done by anyone who possesses skill enough to unscrew a bolt and replace it correctly. This pump consists of a pump barrel or tube, the length of which is regulated by the depth of the well; the foot-valve may be of some ordinary and approved style, and the diaphragm chamber is an enlargement of the barrel or tube sufficient to receive a flexible diaphragm. The chamber is made in two parts, with flanges around the larger ends. Bolts pass through the flanges and firmly tie them together, and at the same time firmly clamp the edge of the diaphragm. For small pumps, one part of the chamber may be screwed directly into the other and the edge of the diaphragm clamped between the end of the male part and a shoulder within the female part. At the middle of the diaphragm it is fastened securely to a small valve case rigidly attached to the pump-rod and operated by a



No. 37.



No. 17.



No. 38.

lever in the usual way. At each downstroke the water inclosed below by the foot-valve is forced to pass through the diaphragm by way of the valve in the case, and at each upstroke the water is lifted and the part above is forced out at the top by way of the outlet, whence it may be conducted in any direction desired. One of the principal features and chief advantages of this pump is that it is just as reliable in cold winter days as in summer. It will never freeze up, as it is drained below the freezing point. This is all done automatically as soon as the current ceases to flow.

Metals and Mining.

New Aluminum Works.

A LARGE establishment for the manufacture of aluminum is in process of erection at Lockport, N. Y. The *Buffalo Iron Review* says of the new enterprise: "Hitherto the process of obtaining aluminum has been very expensive, through a combination of chemical heat. At the Cowles works the corundum will first be subjected to intense heat, then broken and ground to powder, after which it will be fused in hermetically sealed crucibles by the powerful electrical current generated by the employment of the largest dynamos that have ever been constructed. The product is the pure aluminum, of which the yield from the corundum is about 50 per cent. No doubt is entertained of the success of the electrical process, which, although so recent a discovery as not to be described in scientific works, has been thoroughly tested. Large quantities of the alloy will also be manufactured at the works, requiring, it is estimated, from 10 to 20 tons of copper a day when the works get to running to their full capacity. As a very serviceable alloy may be made with only five per cent. of aluminum, it is evident that a very large amount of copper will be required."

Safety Device.

JOHN WILLIAMS, a practical miner on the Comstock for years, as well as in Candelaria, California, Montana, Idaho and the old country, has invented a safety device to be attached to mining-shaft cages. It is intended as an improvement upon the safety clutches now in general use to prevent a cage from falling in case of breakage to the cable, causing the same automatically to act, especially in case of an unclutched reel or a long line of broken cable lashing from side to side in the shaft, keeping up the tension on the kingbolt. In this device a stout chain placed over a set trigger holds the safeties in place independent of the kingbolt, so long as only the regularly required speed is used; but should it suddenly attain an extraordinary speed through breakage of the cable, a heavy hammer hits the trigger, knocking it and the chain loose, forcing the safeties to act immediately, arresting the fall of the cage. This hammer is hung on a pivot or upright shaft, whirling around above the crosshead of the cage after the style of a "governor" of an engine, caused to do so by rollers of its own operating against the cage guides. Thus an undue rate of speed will cause the hammer to swing higher by centrifugal force and strike the trigger, releasing the spring of the safety clutches and forcing them to operate instantly in arresting the fall of the cage. The device is a new and interesting one, works perfectly and commends itself to all mining engineers or others interested in such really important matters. Mr. Williams has a working model of his invention.—*Virginia Enterprise*.

Tin Ores.

TIN ore has long been known to exist in the Temescal range, San Bernardino County, California, and considerable money has been spent in prospecting. It is a region of granitic rocks, and tin-stone occurs in many places, but chiefly at the Cajalca, where a shaft has been sunk following an irregular vein or mass of amorphous cassiterite of a brown or black color. The tin ore is disseminated in small quantity in small lodes and veins. The region, although affording tin oxide in many places over a considerable area, has never realized the hopeful expectations of those who have made efforts to work it. Several other places in the State have been said to show tin, but garnet is often mistaken for this ore, and no tin in quantity has been so far producing here. Under the cheaper conditions of supplies, labor, transportation, &c., it would seem high time to do some thorough prospecting of the San Bernardino tin fields.

Tin ore has been found in several places in the granitic region of Montana and Idaho, particularly in the Rocky Mountains, at the headwaters of the Missouri and in the Western drainage, including the streams flowing from the Bitter Root range, especially in the Snake and Salmon and their affluents.

Small quantities of tin ore have been found in New Jersey, Virginia (in several counties), Georgia, Alabama, Texas and Missouri. By far the best deposits so far found in this country are those in the Black

Hill of Dakota. The mines are in the central portion of the Black Hills, a few miles east of Harney Peak, near the dividing range of the region. The Etta, the principal mine, is on an isolated granitic hill rising about 250 feet above the valley, and at an elevation of 4,500 feet above sea level. The granitic masses are very coarsely crystallized, and deposits of quartz, feldspar and mica are found. The quarrying for mica on the Etta claim brought the tin ore to notice. Since the discovery of tin at the Etta, it has been found in other similar granitic outcrops, especially at the Bob Ingersoll and Monarch claims, each of which has been worked for mica. The massive tin ore found in the Etta claim was a close association with quartz, feldspar (both orthoclase and albite), and a remarkably large variety of spodumene. There is, in addition, the granular form of the ore, in small crystalline grains, disseminated in the massive micaceous albite rock, which penetrates or is inclosed in the coarse granite irregularly. The ore in the Etta is massive, in bunches with spodumene, quartz or feldspar; or granular or disseminated on a micaceous aggregate or greisen. The area of the tin region of the Black Hills is being constantly extended. Some stream tin is also found. The mines are being worked vigorously.—*Mining Press*.

New Process of Welding Steel.

E. D. WASSELL, of Pittsburg, Pa., has invented a new process of welding steel, by which steel bars of any content of carbon can be piled and welded together. He has demonstrated this by making a homogeneous weld of a pile made of bars containing sixty-five points of carbon. The process is not applicable to bars alone, but any miscellaneous steel scraps may be put up in fagot form and welded in the same manner by the rolling process. Another feature of this method is that the carbon can be reduced to any point desired; that is to say, steel of sixty-five points can be reduced to ten points in carbon while in the solid form without remelting. The process will cover the working of old rails and old steel scrap. The great usefulness of the invention consists in the fact that piles can be welded from which plates can be made as large as 10 by 4 feet, and thus, it is claimed, the method will cover the whole agricultural field and like branches of the steel industry.

Unsuccessful Deep Mining.

THE topic of interest among mining men at present is the proposition to cease prospecting on the lower levels of the Comstock lode, which is now under consideration. The pumping at the Combination shaft has been done by the Chollar, Hale and Norcross and Savage Companies, but the Savage Company has refused to pay its quota any longer. This action by no means involves the abandonment of the lode, but simply the lowest levels, which will be allowed to fill with water should no arrangement to continue work be made.

W. S. Hobart, the well-known mine-owner, has stated that he did not think the shaft would be shut down at present to the 2,400-foot level, but that the bottom of the shaft would be abandoned by stopping the pumps at the 3,000-foot level immediately. After a little while, he thought, the next set of pumps at the 2,600-foot level would be stopped, and eventually, in all probability, the shaft would be stripped to the 2,400-foot level. When asked what he thought would be the effect of abandoning the lower levels in that way, Mr. Hobart said that he was afraid it would have a very bad effect on mining in the Comstock. It would, he said, put a stop to the collecting of assessments, as he feared it would put a stop to all speculation in Comstock shares. The public, he said, have hoped for and have been educated to look for very large developments below the 3,000 level. There is, he said, a great deal of unexplored ground in the upper levels, but no one looks for any great developments there.

The immediate cause of the shutting down was the refusal of the Savage people to bear their proportion of the cost of keeping the pumps going. This threw all the burden of the expense on the other two mines, and they did not care to carry it.

There was, he said, at one time a project for driving a long drift through the lower levels to drain the middle mines through those at the south end, and maps and plans of the proposed work were made; but the scheme fell through because no arrangements could be made which would be satisfactory to all the parties to be benefited by the drainage.

As to the statement that the pumps at the Yellow Jacket new shaft

would probably be started up for the purpose of draining, so as to prospect the 2,700 level of the Belcher mine, Mr. Hobart said he knew nothing, although he did not consider it improbable, as he had always been given to understand that the showing was very good in that mine when it was shut down.

Among other things it is now rumored that an attempt will be made to get Congressional aid to work a shaft to the 5,000-foot level.

A curious feature of the proposed cessation of pumping is the fact that W. S. Hobart, one of the Chollar trustees, is also a large shareholder in the Virginia and Gold Hill Water Company. The shutting down of the hydraulic pumps at the Combination shaft will curtail the monthly revenue of the latter incorporation \$10,000. To offset this the rumor is revived that the pressure heretofore required to operate the hydraulics will be utilized to drive stamp mills to be erected in the canyon east of the Chollar old works for crushing ore from the mine, the extraction of which it is alleged will be resumed on an extensive scale. Repairs to the old hoisting works now in progress lend a shadow of plausibility to the rumor.—*Mining Press*.

Idaho Placer Mines.

THE Hunt placer mines are the finest as well as the largest flour gold placer mines in Idaho, if not in the country. The claims lie on the Alturas County side of Snake River, two and a half miles below the Salmon Falls. The entire claim, sloping westward and fronting the river for the distance of about one and one-fourth miles, consists of 148 acres patented land, which is the only patented placer claim in Alturas County.

In addition to this there is about 200 acres of good mining ground held under location, which shows "colors" from the surface down; besides this there is also about 120 acres that is valuable for dumping-ground and for placer machines. The gravel of the claim is fine, none of it being larger than a goose-egg. No boulders have been found to interfere with the mining, except in one small corner, next the United States mineral monument.

The Burlap system is used—five machines with grizzly plates, 4 x 24 feet, and with six burlap boxes each, 3 x 24 feet. Only three machines are used at present. An abundance of water for any number of machines can be obtained by enlarging the present ditch, about 200 inches of water being necessary to the machine. There is room on the river front to put in some five more machines. Where the ditch now comes on to the claim it is an elevation of some 30 feet above any other point on the claim, and being easily conducted by surface ditches to any point desired, no pipes are used for washing the ground the first time; pipes will be used, however, in cleaning off the bed-rock.

The gravel has been found to be of much greater depth than was at first supposed when the claim was opened, having been worked down in some places to the depth of 25 feet, with no sign of bed-rock appearing. Some of the pits have been worked back 600 feet, and the gold found is as fine as flour. The ground that has been worked has paid at the rate of 5 cents to the cubic yard, from 300 to 350 cubic yards being washed by each machine every twenty-four hours. The average production of each machine per month during the past year has been \$350. The quality of the gold is very high, running about 945-1,000 fine.

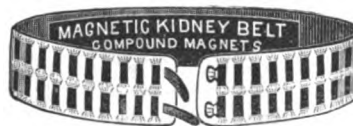
The number of men employed is as follows: One on the ditch, one in the pits of each machine, one making ditches, one with the team, and another to rock up the concentrates. During the past three winters there has not been a single clean-up missed on account of cold weather. In the winter of 1885-6 the coldest was five degrees above zero and that only three or four mornings. Each machine is cleaned up twice a week, except in very warm weather, when it is necessary to clean up three times. Two men will clean up a machine in two hours. The burlaps and concentrates are then hauled to the rock-up shop, which is the only building on Snake River for that purpose, and rocked up.—*Boise (Idaho) Statesman*.

A VEIN of alum has recently been discovered near Clifton, Graham County, Arizona. The vein cuts through a mountain, and is plainly visible from a distance. The trend is northwest and southeast. In many places the deposit closely resembles the carbonate beds which occur in Nevada, in Eureka District. The mass is solid where not exposed, and will require blasting.

Remedial Appliances.

Magnetic Belt.

THE illustration herewith presented is that of the Compound Magnetic Kidney Belt, for which Samuel Lees & Co. are the sole agents. The belt is made of silk and other fabrics, having two buckles and web-straps in front with which to fasten it. The magnets are sewed within the layers of fabric, and the peculiar feature in its construction is the manner in which the magnets are placed. Heretofore the magnets in all magnetic appliances have been laid singly. In this belt, however, they are laid double, and as a consequence the belt can be made narrower, while half the number of magnets laid in this way



possess more than double the power of those laid singly. The belt thus constructed is convenient, comfortable, powerful, can be worn over underclothing and not next to the body; there

is no danger from poisonous acids or metals; the belt does not require recharging, and, above all, it is said to produce lasting and permanent effects. Only the best steel magnets are used, and they are properly tempered, each magnet being carefully polarized and charged before it is laid in the belt and all like poles point in the same direction. The belt is sold at a very reasonable figure, and as to its usefulness a large number of strong recommendations are presented. Further particulars as to magnetic garments of all kinds and illustrated catalogues may be had by sending to Samuel Lees & Co.

The Dentaphone.

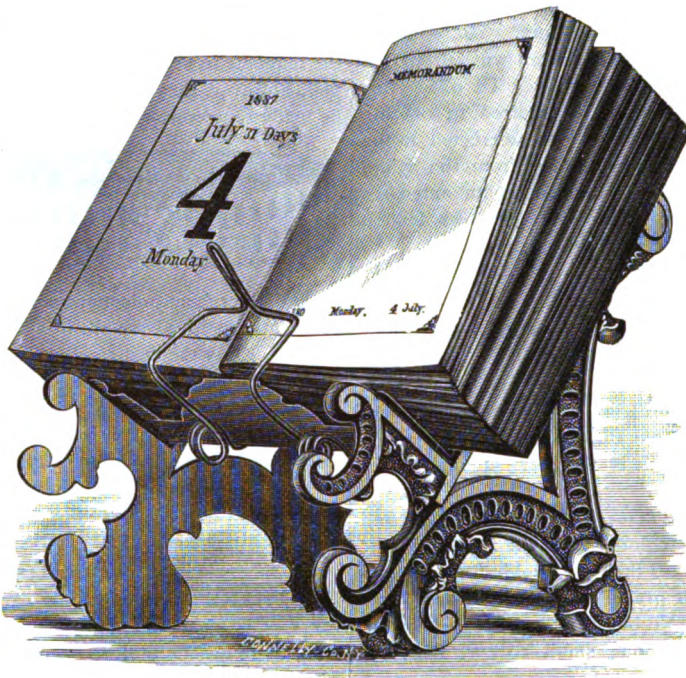
WHERE a person is only partially deaf the old style ear trumpet is of service, but where total deafness has been the affliction, there has heretofore been no method of assistance. The dentaphone, however, has come to the rescue, and by the use of the well-known fact that sounds can be heard by the instrumentality of the teeth, the little instrument referred to has been introduced for the use of those who have been deprived of their hearing. The dentaphone is the invention of a Cincinnati, Ohio, physician, and the sole export agents for it are Samuel Lees & Co. In appearance the dentaphone resembles an ordinary fan, for which it is usually mistaken, and it weighs only a few ounces. It consists essentially of a thin, flexible, folding diaphragm of a peculiar composition, chiefly vulcanite, which possesses the property of gathering up on its delicate surface the sound-vibrations that constitute spoken language, music, &c., and conveying them to the teeth of the person using it. From the teeth these sound-vibrations are conveyed through the bones of the face and head by new channels to the nerves of hearing. It is used by simply placing the edge against the upper teeth and bending it to a tension suitable to the degree of deafness of the person using it. Its close appearance to a fan, together with its simplicity and small size, make it very convenient to use, while it attracts no notice from strangers. It is said to do perfectly that which it is designed to do and the user can hear perfectly conversations, lectures, concerts, &c.

AN assertion having been made that colored laborers at the South work for 60 and 70 cents a day, the *Times*, of Chattanooga, says: "Careful investigation here reveals the fact that the lowest wages paid to colored laborers in any industry is 90 cents a day, and this rate covers only a few at the South Tredegar Iron Works. The greater number of colored men at those works receive wages running from \$1 to \$3 per day, with a large number at the intermediate rates of \$1.25 and \$1.50 per day. In every case where skilled colored men are employed as heaters, puddlers, helpers, &c., they get exactly the same wages as white men doing the same work. Colored laborers at the Chattanooga furnaces get \$1.25, \$1.50 and \$2 per day, according to the skill, responsibility, &c., required to fill the various places in which they work. These are representative Southern industries. This applies also to Birmingham, Knoxville and other places. Colored boys in the South Tredegar Nail Works, working as feeders, make from 75 cents to \$1.25 per day, according to the skill and industry displayed in their labor. Some colored men make as high as \$4 per day as puddlers and molders in this section."

Fancy Goods, Stationery & Paper

"Challenge" Memorandum Calendar.

THE "Challenge" memorandum calendar is illustrated on this page, and, as will be seen, is in the form of a book resting in an inclined position on a substantial metal base. The left-hand page shows the year, month, day of the week, day of the month and the number of days in the month, while on the opposite page is ample space to record memoranda. Attached to the base is a leaf-holder, which holds the calendar open. This new article is very desirable, in that the record made is permanent and may be kept, instead of each page being torn out as used in the calendar. The front of the stand has a pen-rack.



"CHALLENGE" MEMORANDUM CALENDAR.

"Always Ready" Sponge-Cup.

AN improvement in the line of sponge-cups is the subject of illustration, and its features will be readily understood on looking at the engraving.

This is what may be called a mammoth among sponge-cups. It is $8\frac{1}{2}$ inches long, $6\frac{1}{2}$ inches high, and weighs $2\frac{1}{2}$ pounds, and the glass cup and reservoir are mounted on an ornamented black-japanned, bronze or nickel-plated base, the cup containing a fine sponge. The sponge-cup is connected with the reservoir containing water, the surface of which is at a higher level than the sponge in the cup, and by simply turning a rubber cap at the top of the reservoir a given quantity of water is forced into the sponge by atmospheric pressure, thereby obviating the necessity of frequently removing the sponge from the cup for the purpose of wetting it. The cup is intended especially for moistening the fingers in counting money and for cleaning pens, moistening postage-stamps or gummed envelopes; also, for cigar show-cases, to keep the stock from drying up. It will be found useful for any of these purposes. There is no overflow and the quantity of water in the cup can be regulated at will. One filling will keep the sponge in condition for two weeks.



"ALWAYS READY" SPONGE-CUP.

EXTRA long pocket-books are now the correct thing. They are made in all the fancy leathers, have very handsome metal clasps, and are very neat and taking. They come in alligator, seal and different leathers with an ornamental initial on one corner.

Label Varnishing.

TO give to oyster and fruit labels and other bright-colored printing matter the glossed and brilliant appearance that is so much admired, it is necessary that they should be varnished. This has heretofore been the cause of a great deal of trouble, for the reason that the sheets, after the labels were varnished, would have to be spread out singly to dry; consequently a considerable space for drying-racks was required, to say nothing of the delay in waiting for the work to dry

and the labor lost in handling the sheets. The matter of doing away entirely with the racks has engaged the attention for some time past of a Baltimore man, who, it is said, has achieved a wonderful success in a machine invented by him to do the work described. It entirely revolutionizes the old method of doing work. With this machine the work can be done with the same facility and dispatch as any ordinary printing is done. The sheets are fed to the glosser in the same manner as to a printing-press, and are automatically taken to a hot-air chamber in a drying-machine attached to the glosser. After traveling the length of the hot-air chamber they are returned by an ingenious contrivance to another portion of the machine, and automatically conveyed through a cold-air chamber and delivered on a receiver, thoroughly dry in all their parts and ready to be handled. To work this novel and interesting machine requires no more help

than an ordinary printing-press, while its capacity to gloss and dry is ten thousand sheets per day of ten hours.

AN improved compound for constructing school blackboards is prepared by taking sixty parts of Portland cement, one part of lamp-black or ivory-black, or its equivalent, and sixteen parts of "parting-sand," the latter being known to molders as the "burned sand," which they employ to separate castings from their matrices or to separate the "flasks." It is ordinarily procured by separating from castings the burned sand adhering to them, and one part of powdered emery. The lamp-black or ivory-black is first "cut" with alcohol, and then the ingredients are thoroughly intermixed and blended into a homogeneous compound. The parting-sand having its color burned into it does not fade nor become in the least less black than when first made, and it gives a fine gritty surface, which is peculiarly adapted for causing the chalk to mark distinctly, the Portland cement rendering it hard and durable.

American Industries.

Industrial Briefs.

There were 3,396 names on the pay-roll of the Pennsylvania Steel Works, at Steelton, Pa., during the month of September. The amount of wages paid for that month amounted to \$136,000, the largest in the history of the company. * * * *

The Warren Tube Company has recently been incorporated at Warren, Ohio, with a capital stock of \$200,000, for the purpose of manufacturing compressed iron and steel tubes. It expects to commence operations in January, 1887. * * * *

Jacob Beese, of Pittsburg, inventor of the basic process of making steel, has sold the right to use his process to the Sloss Furnace Company, of Birmingham, Ala. The company will at once erect a plant for the manufacture of steel on a large scale. * * * *

The new furnace now almost completed at Jones & Loughlin's Eliza plant, Pittsburg will be the largest in Pittsburg—perhaps in the country. When ready for blast it will have cost upward of \$200,000. It is 95 feet high, with a 20-foot bosh and eight hot blasts. The smoke-stack runs up 175 feet. * * * *

A tract of 4,000 acres, believed to be rich in natural gas, has been purchased in Madison County, Ill., by a company organized to supply manufacturers in St. Louis, and promises are made that within a month that city will possess advantages in respect to gas equal to those enjoyed in Pittsburg. * * * *

Furnace F, of Carnegie Brothers & Co., at Braddock, Pa., was successfully blown in on October 18, making a total of six furnaces in blast and one building, all owned by the above company. Furnace G is rapidly approaching completion and will be blown in about the first of the year. When this occurs Carnegie Brothers & Co. will have the distinction of being the largest pig-iron producers in the world. * * * *

The Chrome Steel Works, of Brooklyn, N. Y., have concluded to substitute gas for coal in their heating furnaces. It will be necessary to tear out their old furnaces and put in regenerators in their stead. The new plant will be complete in every respect, even to apparatus for the manufacture of the necessary gas, which will be made on the premises. The improvement will increase the productive capacity of the works twofold. * * * *

Richard Eames, Jr., who is superintending the work for the Carbon Iron Company, of New York, at the old Cranston mines, Rhode Island, is now working with a force of miners day and night. Two new mines have been opened recently and large quantities of graphite are being shipped to the company's works in New York. He intends to push forward the work rapidly during the coming winter, thereby keeping a number of miners employed. * * * *

Wm. H. Everson & Co., of the Scottdale Iron Works, Scottdale, Pa., will have completed in about six weeks their new rolling mill, consisting of two trains of sheet rolls, one train for making heavy gauges and one train for making light gauges of sheet iron and steel, and one complete 18-inch skelp-iron train, for skelp iron from twelve to twenty inches wide, the whole to be driven by a heavy engine, 40-inch cylinder, 60-inch stroke, with 40-ton fly-wheel. The engine was built by the Pusey & Jones Company, of Wilmington, Del., and the roll trains by Totten & Co., of Pittsburg. This mill is being built with numerous improvements, and is expected, when completed, to be one of the best built rolling mills in the State. * * * *

The Dueber Watch-Case Manufacturing Company, Newport, Ky., and the Hampden Watch Works, controlled by Mr. Dueber, will soon have a large new manufacturing plant at Canton, Ohio. The *Canton Repository* says: "The new works are to be situated on a plot of twenty acres, lying just outside the city limits of Canton, but closely contiguous to the business part of the town. To this tract Mr. Dueber has added by purchase five acres more, which he will beautify with lakes, drives, walks, &c. To compensate him for the large loss by

reason of shrinkage in business during removal, cost of transportation, &c., the citizens of Canton raised the sum of \$100,000. They have also furnished him with ample switching conveniences. Work has already begun on the building which will be occupied by the Hampden Watch Works. Contracts for the still larger building (watch-case works) will be let January 12. The first building (watch works) will be 575 feet long and 270 feet deep from the front of central portion to rear of engine-house. The watch-case works will be a duplicate of this, only 55 feet longer, or 630 feet long. The central portion will be 80x170 and five stories high. The series of wings will each be 250 feet long and three stories high, with nearly a full story on top of that. They are only 25 feet wide in the Hampden works and 30 feet in the Dueber works—the better to insure light. All the roofs are to be of monitor section. The engine-houses will each be 66x67, and will contain six boilers each. The stacks will be 150 feet high and 16 feet in diameter at the base. The base will be octagonal in form, with 22 feet of stone-work. The stacks proper will be round." * * * *

A great stockyard scheme is said to be projected for the extension of the export trade in cattle at the port of New York. The parties concerned are the St. Paul Union Stockyard Company and A. B. Stickey, president of the Minnesota and Northwestern Railroad Company, who have purchased a large tract on Staten Island, just above Quarantine and about a mile above the Narrows, with 1,100 feet frontage on the upper bay, where it is proposed to build extensive docks, elevators and warehouses. There is an abundant depth of water at this point for the largest shipping, and the rapid-transit railway, which runs all around the island and is controlled by the Baltimore and Ohio, passes through the property. The purchase includes 200 acres about five miles distant from the docks, where the stockyards and feeding stables are to be located. The object is to avoid the charges for lighterage at New York and the embarrassments now attending the transhipment of cattle and grain. * * * *

The extensive cutlery works of the Beaver Falls (Pa.) Cutlery Company, which have for a number of years past been running in a desultory manner and which have been shut down entirely for the last four months, have been leased for a period of five years to a company of capitalists of Bridgeport, Conn. The new company will employ about 300 hands, and will manufacture table cutlery, butcher and kitchen knives. Natural gas will be put into the factory, which will start as soon as the men can be got. The old firm will retain the pocket-cutlery department and will start it up soon. Other parties are negotiating for a lease of the scissors department, and it is thought that the whole concern, employing about 600 hands, will be in full blast before spring. * * * *

J. P. Witherow has closed a contract with the Chicago Steel Company for a new steel plant to be erected at Hammond, Ind. The plant, when completed, will have a capacity of 150 tons a day, and its product will be steel nails, car axles and steel billets. The blooming and plate trains will be furnished by J. L. Lewis, of Pittsburg; the furnace castings by the Altoona Car Works, of Altoona, Pa., and four regenerative gas furnaces by M. V. Smith, consulting engineer of the company. The plant will cost \$157,000 and will be completed about February 15, 1887. * * * *

Toledo, Ohio, is looking forward with much hope to the early introduction of natural gas for manufacturing and domestic purposes. A strong company has been formed, and right of way has been obtained for a pipe line to bring what is believed to be an ample supply from important gas wells recently discovered about twenty-five miles southeast of the city. If a good supply of natural gas can be furnished at suitable prices the recent tendency to turn from commercial to manufacturing activity, specially manifest within the last year or two, is expected to give the city a boom. * * * *

The industrial awakening in Pennsylvania is something remarkable. During the last week in October no less than one hundred establishments engaged in some branch of the manufacture of iron and articles made of iron were put in operation in different parts of the State. The price of iron has advanced, and there is an enormous demand for coal, notwithstanding the supply of natural gas.

The American Mail & Export Journal.

Publication Office : 126 and 128 Duane St., New York, U. S. A.

Cable Address, Catehow, New York.

NEW YORK, NOVEMBER, 1886.

LAST issue we printed an item showing that the investment of capital in new enterprises in the Southern States amounted to \$84,000,000 during the first nine months of the current year. This was \$31,000,000 more than was invested in the same territory during the corresponding period of last year. This shows how remarkably the South is developing, and the field is barely opened for the possibilities which may be derived from it.

LIFE insurance has taken root in Mexico, and American companies have established agencies in that country with success. When it was first proposed to introduce this feature in Spanish-American countries, it was predicted, with much plausible argument, that the effort would prove futile, but the last issue of the *Mexican Financier* contains the assurance that it has become a fixed fact. There must be some comfort in this for our Mexican neighbors. It adds another guaranty of protection from the northern republic.

THE coming short session of Congress promises to be prolific of some excitement. Recent events have made it necessary for the advocates of certain measures affecting revenue and currency to press their issues ere the halls of Congress shall know them no more. The attempt will be made to subvert the expression of popular opinion and put through a tariff bill which shall carry out, as nearly as possible, the views of those who will not shape the course of legislation next year, and the pronounced advocates of the free and unlimited coinage of silver will try to engraft their ideas to as great an extent as possible upon pending legislation. Perhaps both will fail. It is probable that they will.

AN increase in the tide of emigration to this country is a reliable index of improved conditions for wage-workers. The news has gone abroad that American industries have revived, that there is an opening for labor and that prosperity is assured. There is room, plenty of it, for the capable, intelligent and industrious workers of the Old World; but a very poor chance for those who are slothful and incompetent. The farmer or the mechanic will find advantages constantly opening before him if he comes prepared to possess them under the conditions of honest toil and fair service. People of "advanced ideas," Socialists, Anarchists and of indolent habit will find it difficult to work out their principles and at the same time acquire the means to live. There is wealth or competence for the immigrant who can earn it.

NO decisive action has yet been taken in the Bulgarian trouble. The events of the past months have afforded as good a pretext for a European war as on more than one previous occasion, and yet the powers stand facing each other like gladiators waiting for an opportunity to get in the first and most effective blow. The purchase in this country of machinery for the manufacture of arms indicates something more than precaution. It suggests intention and, when the time comes, action. There is no unwillingness on the part of either of the great powers which undertake to shape European politics to enter into a war. It is part of imperial policy to keep the minds of the people diverted and to distract attention from matters of domestic moment. Glory attained from conquest is also an inspiration, and the desire for the extension of domain

and power is never satiated. But *va victis*. History has too recent an example of pride and ambition leading to a fall not to cause the crowned heads of Europe to "go slow." When the proper exaltation of mind is attained, when the needed preparation is made and the alliance, offensive and passive, is formed, the outbreak may be expected. Pretense enough has been afforded, and it will be taken advantage of—if the parties interested are not afraid.

THE elections just closed forecast the character of revenue legislation during the two-years' term of the next Congress. The free-trade movement has received a decided check, and the majority of its most prominent advocates have been retired, while those who have secured re-election have barely saved their seats. These results indicate a widening drift of opinion in favor of tariff laws which shall be so framed as to conserve every interest which foreign competition might frustrate or impair. The growth of this opinion is particularly marked in the Southern States, where once the extreme opinions of free trade were localized. Reverting to what may seem to some of our readers ancient history, we recall the incidents which led to our civil war. It is generally understood that the salvation of the system of slavery was at stake in that issue; but it is not so generally understood that free trade was the sheet-anchor of that system. So long ago as 1812, John C. Calhoun, of South Carolina, the great leader in nullification and apostle of secession, gave reasons for the alliance existing between the Southern planters and the representatives of a free-trade policy. He said: "That we are essentially aristocratic I cannot deny; but we can and do yield much to democracy. This is our sectional policy; we are from necessity thrown upon and solemnly wedded to that party, however it may occasionally clash with our feelings, for the conservation of our interests. It is through our affiliation with that party in the Middle and Western States that we hold power; but when we cease thus to control this nation we shall then resort to a dissolution of the Union." Again, in 1824, Mr. Calhoun said: "We must prevent the increase of manufactories, force the surplus labor into agriculture, promote the cultivation of our improved Western lands, until provisions are so multiplied and reduced in price that the slave can be fed so cheaply as to enable us to grow our sugar at three cents a pound." These are explicit definitions of free-trade policy, an aristocracy founded upon the wealth derived from the labor of the enslaved and the toiler, the relegation of the workingman then and to-day to the position of a serf, and the establishment of baronial power at the cost of industrial extension, manufacturing enterprise and the free farmer. The condition of Ireland to-day is akin to that outlined and demanded in the interest of the slave-holding aristocracy.

BUT Henry Clay, the champion of protection, and in his day the most advanced defender of the interests of the free workingman, replied to Mr. Calhoun as follows: "The gentleman would have us abstain from adopting a policy called for by the interests of the greater and the freer part of the population. But is that reasonable? Can it be expected that the interests of the greater part should be made to bend to the condition of the servile part of our population? That, in effect, would be to make us the slaves of the slaves." Mr. Calhoun was originally a protectionist; but the growing importance of the North realized by the prosperity engendered by the development of manufacturing resources caused him to adopt the opposing idea and to urge it as the best means of salvation for the institution of slavery and the domination of wealth and importance acquired thereby. He did not then know the marvelous undeveloped wealth of the territory, and the possibilities of the domain which seemed to him best adapted for imperial sway.

He was in no sense a Republican, in no sense a Democrat. He was the exponent of aristocracy and autocratic power. Other representative Southerners possessed with like ideas took similar ground. In 1860 Dr. Elliott, of Mississippi, published a pamphlet embodying the views of the secession leaders. In this it was said that "if they could establish free trade, it would secure the American market to foreign manufactures, secure the foreign markets for their leading staples, force Northern men into agriculture, multiply the growth and decrease the price of provisions, feed and clothe their slaves at lower rates. * * * There was a fusion of interests between the planters of the United States and the British manufacturers, and to the planters the copartnership has been eminently advantageous." But the war has changed all this. The "New South" has unbounded possibilities before it. Its immense natural resources, its producing capacity, are becoming better known, and year by year great strides are being taken toward the union of the agricultural and the manufacturing interests. The planter or farmer is not obliged to depend upon the foreign demand or to submit the price of his staple to the caprice or dictation of the foreign buyer. Factories are built contiguous to his borders; the product of his farm is taken up and converted with greater celerity, and an army of workers, builders up of industrial power and agricultural wealth, consumers in the largest and freest sense, help to dispel the idea that we must depend upon other countries for the raiment we wear, the tools and manufactured material we require and ignore the intelligence begotten of educated and free labor. No, times have changed, and we believe that the recent elections are an index to the future, confirming the belief that by industry we thrive, and that by protection are steadily progressing toward the imperialism of a true liberty.

SOME of the more prominent advocates of bimetallism are disposed to doubt the possibility of establishing a double standard of currency. That the task is not easy may be conceded, but that it is impossible is, after all, a matter of opinion and not of experience. We can all recall the time when the resumption of specie payments was mooted in this country and the doubt of its practicability was forcibly expressed, and yet when it was attempted it succeeded as naturally as if there had never been any suspension. Perhaps the task is easier than may be imagined. That there are prejudices in favor of monometallism which cannot be overcome is as natural as that men should have opinions and prejudices on any subject. Like disposition is to be found on the other side of the question; but in all things there is a mean, and it can be discovered in this issue if it shall be properly sought.

LATE DEVELOPMENTS IN URUGUAY.

URUGUAY, or the Oriental Republic, is one of the richest and, geographically, one of the best situated South American countries. The climate is temperate, the soil fertile, but best adapted for grazing purposes. The country is well watered, having besides a variety of valuable mineral resources, and combines most of the advantages of Southern Brazil and the Argentine Republic, which it separates, without the inconvenience of being too large and thereby facilitating periodic revolutions, the curse of most Spanish-American countries. It attracts immigration from agriculturists and herdsmen with as much ease as its neighbors.

The Oriental Republic covers an area of 169,822 square kilometres and has a population of 520,536 souls, 368,166 of whom are native born and 152,370 foreigners. Among the latter 39,780 are Spaniards, 36,303 Italians, 20,178 Brazilians, 15,546 Argentines, 14,375 Frenchmen, 2,772 Englishmen, 2,125 Germans, and 9,143 of other nationalities. The port of Montevideo has 104,472 inhabitants. The excess of births over

deaths has ranged between 12,079 and 15,923 of late years; the number of emigrants between 25,628 and 31,383, while there left between 24,336 and 29,692 individuals annually.

The public indebtedness amounts to \$59,275,903, of which \$4,040,375 are owing abroad, but the interest is paid with the greatest punctuality. There are in circulation \$1,696,892 of treasury notes. The revenue amounted last year to \$11,640,000, and the expenditure to \$11,520,491.

The strength of the army is 3,061 men, of the national guard 20,000, the police 3,200, and the navy consists of three small steamers, two gunboats and one coasting craft.

There were dispatched in 1883 5,482,818 items of mail matter by 234 post-offices, against 3,040,432 in 1881. Of railroads in operation there were last year 265 miles; telegraphs, 669 miles; land lines and a cable, 100 miles in length.

The importations of merchandise amounted in 1885 to \$25-275,000, against \$24,550,000 the previous year, and the exports to \$25,253,000, against \$24,759,000 in 1884; total foreign trade, \$50,528,000, against \$49,309,000. The imports in 1884 were, in thousands of dollars: 6,803, from England; 4,527, from France; 824, from Belgium; from Italy, 1,506; Spain, 2,271; Germany, 2,348; Portugal, 33; United States, 1,572; Brazil, 2,430; Argentine Republic, 635; Chili, 84; Paraguay, 88; Cuba, 159, and other countries, 1,270, and the exports to England, 5,210; France, 3,668; Belgium, 3,828; Italy, 351; Spain, 458; Germany, 834; Portugal, 218; United States, 1,785; Brazil, 2,430; Argentine Republic, 1,859; Chili, 92; Paraguay, 2; Cuba, 958, and other countries, 1,614.

The quantities exported, represented in thousands of dollars, were cattle, 624; jerked beef, 4,579; canned ditto, 241; beef extract, 929; hides, 6,481; skins, 897; tallow, 2,351; wool, 6,699; horsehair, 253; bones and bone-ash, 213; guano, 316; ostrich feathers, 85; cereals, 301, and other products, 790. Imports of specie and bullion in 1884 were \$4,736,853, the export \$6,864,615. Montevideo alone received \$22,656,103 of imports and shipped \$14,714,983 worth of products. There arrived at the latter port in 1884 1,353 sea-going vessels, of a joint tonnage of 1,265,016, and 3,008 coasting craft, of an aggregate capacity of 1,151,702.

During the fiscal year ended June 30, 1886, the United States imported from Uruguay \$4,925,848 worth of merchandise, and exported thither \$1,110,545 worth of domestic goods. During the preceding fiscal year the import was \$2,734,617, and the domestic exports \$1,601,759.

There are two drawbacks of a serious kind, which both Uruguay and the Argentine Republic have frequently to contend with—viz., prolonged droughts and inundations. This year the drought has been long and terrible, causing great mortality among flocks, and the deaths for want of water and from diseases of an epidemical kind this year in the La Plata states were no less than 20,000,000 sheep, so that there is going to be a decrease in the wool clip of 30,000 bales, hardly compensated for by the higher price.

Politically there has been no change, and General Maximo Santos is still the president, or rather dictator, of the republic. Early in April the revolutionary leader, General Arredondo, invaded the country at the head of a large force, but was utterly defeated April 6, and on August 17 an attempt on General Santos' life was made, but he recovered from his wound. Early in May Dr. Francisco Antonio Vidal was elected president, but resigned on May 25, when Santos was reinstalled. General Santos is probably the ablest chief magistrate to be found in the country, and his firmness, blended with wisdom, seems to inspire the people with confidence, which is also shared abroad.

Uruguay has such magnificent resources, and such solid elements among its laboring classes, that it only needs quiet and stability to go on increasing in prosperity and become a more and more valuable customer for our export trade.

NETHERLANDS INDIA.

THE sugar-planting interest suffers probably more in the island of Java than anywhere else, not only on account of the depreciation of the staple, but by reason of the heavy taxes, high railroad freights and an export duty of nine cents per picul. The government has been petitioned to do something toward relieving these burdens, but all that it has offered is to advance money for the 1887-8 crop to private planters at the rate of a guilder and a half the 100 kilograms, or 92 centimes the picul, while government planters are to have credit for the rents they pay the government, 6 per cent. interest to be charged in both cases. This half measure has been received with derision in Holland, as well as in the island itself. By the time the planters are to be paid the advance it is to be hoped that they may not stand in need of it. One of the leading European weekly sugar reviews remarks, under date October 29, as follows:

Meanwhile the statistical position has further improved, and it becomes more and more probable that the present low range of values will have a marked effect in reducing the supplies of 1887-8, as producers are finding it impossible to struggle against the artificial cheapness of bounty-fed European sugar. Even in the far East, where the article has been grown under the most favorable conditions, plantations once prosperous can only be carried on at a loss.

The government of the Netherlands might have been generous enough to follow the example of the colonial government of Ceylon, and have freed the planters during these distressing times of all taxes.

While alluding to one of the chief branches of agriculture in the island it may not be amiss to produce a few statistical figures relating to that usually so flourishing part of Netherland India particularly and the colonial empire generally.

Java and the little island of Madura adjacent to it cover an area of 131,733 square kilometres, the population being 20,259,450, of whom 19,999,276 are natives. The remaining colonies of Netherland India—Sumatra, Riouw, Banca, Billiton, Borneo, Celebes, the Moluccas, New Guinea, Timor and Bali—measure, taken together, 1,728,000 square kilometres, but do not jointly contain a population of over 8,400,000. The non-native population of Netherland India and of Java alone is represented by the figures below:

	Netherland India.	Of which Java alone.
Civil European population.....	43,738	35,535
Chinamen.....	351,828	211,257
Arabs.....	15,869	10,761
Hindoos.....	7,281	2,621
Totals.....	418,716	260,174

Batavia, the capital, has a population of 96,989; Samarang 65,815; Soerabaya, 121,047. It is curious to note the sources of revenue of Netherland India in 1885:

Revenue, in Guilders.	In Holland.	In India.	Total.
Sale of coffee.....	32,646,035	7,709,000	40,355,035
Sale of quinine bark.....	244,530	.....	244,530
Sale of tin.....	4,356,551	.....	4,356,551
Opium lease.....	.....	21,341,200	21,341,200
Customs.....	.....	10,193,000	10,193,000
Land tax or tithes.....	.....	19,337,000	19,337,000
Salt tax.....	.....	7,167,000	7,167,000
Postal service and telegraphs.....	.....	1,307,500	1,307,500
Railroads.....	1,215,000	4,158,000	5,773,000
Sundry incomes.....	740,090	31,825,880	32,565,970
Total.....	39,202,206	103,418,580	142,640,786
Expenses.....	26,125,136	117,974,458	144,099,594
Deficit.....	.....	.....	1,458,808

In other words, in spite of the low price of coffee at the time, which declined in Holland lower than it was even during the February days of the French revolution in 1848, for it sold last year at 24 centimes the half kilogram, the budget of Netherland India did not show a greater deficit than 1,458,808 guild-

ers of 40 cents American, because the taxes were so heavy and the railroad freights so outrageously high.

COMMERCE OF NETHERLAND INDIA (IN MILLIONS OF GUILDERS), 1882-3.

FOR ACCOUNT OF	IMPORT.			EXPORT.		
	Mdsc.	Specie.	Total.	Mdsc.	Specie.	Total.
The Government.....	8,565	1,699	10,264	29,812	.....	29,812
Private parties.....	141,677	11,021	152,698	166,974	3,075	170,049
Totals, 1882.....	150,242	12,720	162,962	196,786	3,075	199,861
The Government.....	8,002	420	8,422	50,721	.....	50,721
Private parties.....	130,619	6,908	137,527	151,133	760	151,893
Totals, 1883.....	138,621	7,328	145,949	201,854	760	202,614

CHIEF EXPORT ARTICLES.

(In thousands of guilders.)

	Coffee.		Sugar.		Tin.		Indigo.	
	1882.	1883.	1882.	1883.	1882.	1883.	1882.	1883.
Government.....	25,804	47,213	.....	.....	3,977	3,386	.....	.....
Private.....	17,833	35,226	83,737	60,244	4,521	3,039	3,427	3,617

FOR PRIVATE ACCOUNTS.

	Hides.	Cloves and Nutmegs.	Rice.	Tobacco.	Tea.
1882.....	2,077	1,836	1,061	17,651	1,885
1883.....	2,535	2,014	1,005	12,802	1,875
	Gambier.	Gutta Percha.	India Rubber.	Pepper.	Rattans.
1882.....	5,017	5,513	4,010	2,661	.....
1883.....	2,443	3,625	4,704	2,508	2,353

TRADE OF THE UNITED STATES WITH NETHERLANDS INDIA.

	1885.	1886.
Imports into the United States, fiscal year.....	\$3,261,671	\$3,175,930
Exports from the United States, fiscal year.....	2,103,066	2,132,047

	*Entered.		*Sailed.		†Vessels. †Tonnage.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
1881.....	8,317	2,012,505	8,566	1,853,213	1,844	143,317
1882.....	14,795	1,527,423	9,361	1,787,474	1,603	138,266
1883.....	8,071	4,291,338	8,757	4,120,434	1,871	155,147

* Maritime Movement.

† Colonial Marine.

There were in operation in Netherland India, in 1885, 591 miles of railroad.

The gross earnings of the private lines were 3,856,056 guilders, the expenses, 1,315,958, and of the government lines, 2,898,052 and 1,315,749 respectively.

There were in 1883 3,630 miles of state telegraph in operation, of which in Java 2,368, and in Sumatra 1,262. In the former the number of offices was 65, and in the latter 20. Private messages sent were 369,165 in 1882 and 354,840 in 1883; government dispatches 28,975 and 28,661 respectively.

The postal service is carried on by 109 offices in Java, 35 in Sumatra and 29 in the remaining islands, 85 of them having a telegraphic service attached to them. Items of mail matter forwarded in 1883 were 7,943,674 in number. Receipts, 1,076,071 guilders.

The foregoing statistics will suffice to convey an idea of the vastness of this colonial empire as well as of its varied productions. Netherland India has the advantage of an excellent soil, a tropical climate, fine geographical position and cheap and abundant labor supply. Till within a few years it has been admirably well administered, but latterly there have been a good many complaints as to the management of public affairs.

EXPERIMENTS conducted on an extended scale at the government station in Kansas have resulted in the success of what is known as the "diffusion process" in the extraction of saccharine matter from the sugar-cane. This process has been practised in the production of beet sugar in Europe, and its success has helped to weigh down the costlier processes of the sugar-cane industry. As a result, it is stated, the experiments have realized one hundred and thirty-four pounds of sugar per ton of cane against eighty pounds realized by the processes commonly in use. This will be good news to sugar-cane producers in all parts of the world.

U. S. Ministers and Consuls.

Co-operative Dairy in Denmark.

CONSUL RYDER.

UNDER the present widespread depression in all branches of agriculture, when the farming classes find themselves forced to use every exertion in order to get as much as possible in all ways out of their thrift, it has been thought advisable to make public the results given by this undertaking in the first year of its operations—a result which would seem to afford clear proof how much can be effected by the union under one great centre when adequate ability is at the same time found to reign, and which, to all appearances, has been the case in these works. One cannot otherwise than feel that a great encouragement is hereby held out to the smaller land-owners in other parts of the kingdom to establish similarly conducted dairies out of the resources of many small holdings, and by such means find themselves in a position to dispose of their milk produce at the highest prices. With this view, the following details of this dairy's expenses and receipts, as also some of the chief rules of the society, are given.

COST OF DAIRY.

The dairy in question has been established through the co-operation of about eighty small land-owners, all of whom are jointly and separately responsible for the amount of the loan contracted for the erection of the buildings, the machinery, inventory, &c. The dairy was fully completed in the spring of last year, being built upon ground where there is a plentiful supply of water for the drift, and the money was borrowed at an interest of $4\frac{1}{2}$ and 5 per cent. It is stipulated that one-half of the loan shall be paid off in the course of ten years and the remainder to be held under permanent mortgage.

The entire works have cost as follows :

Buildings with ground.....	\$3,938
Machinery and two centrifuges.....	2,378
Inventory.....	597
Sundry expenses.....	121
Total.....	\$7,034

The buildings are very solid, and well constructed and fitted up in a practical and appropriate manner.

On July 1, last year, the first delivery of milk commenced, at which time an aggregate number of 592 cows were entered as participants.

The milk was conveyed in hired vehicles, and the expenses of transportation from July 1 to December 31, 1885, amounted on the average to twenty-seven hundredths of a cent per kande (a Danish measure equivalent to four pounds). During the summer months the milk is brought twice in the course of the day, while in the winter months only once. The price paid for the milk per kande is at the rate of one-seventh of the highest quotation price of butter, taken from the weekly published returns from the merchants' butter committee, and the suppliers of fresh milk are bound to take back the whey, mixed with buttermilk, at the price of half a cent per kande.

The expenses and receipts of the dairy for the half-year's operations are stated to have been as follows :

EXPENSES.	
Cost of 1,247,854 pounds of milk.....	\$12,162
Board and wages of staff and workpeople.....	620
Transport of milk.....	893
Coal.....	432
Butter-casks.....	295
Divers expenses.....	282
Interest on loan.....	121
Amount.....	\$14,805
Project.....	1,290
Total.....	16,095

RECEIPTS.	
Butter.....	\$12,872
Skimmed milk.....	824
Residual produce.....	793
Cheese.....	146
Used in the dairy.....	186
Fines from workpeople.....	14
Total.....	\$14,835

STOCK ON HAND JANUARY 1, 1886.

147 staves for casks.....	70
33,990 pounds of cheese.....	910
1 day's milk.....	80
300 barrels of coal.....	200
Total.....	\$16,095

The butter produce has invariably been consigned to an agent in England and has without exception always met with a ready sale at very high prices, insomuch that the net returns received have on the

average exceeded by about 80 cents per 100 pounds the very highest prices quoted in the home butter markets for best-class butter. From the purchased milk (1,247,854 pounds) there has been produced 46,797 pounds of butter—that is to say, on the half year's average a consumption of 26.67 pounds of milk to one pound of butter. The profits earned in the half year, as seen by the foregoing accounts, were of \$1,290, equal to 18 per cent. on the building capital, and somewhat over \$2 for every cow admitted as participator—a return which must certainly be viewed as highly favorable when it is taken into account that the milk has been bought at fully as high rates as have been paid by the union dairies, and remembering also that the establishment is only in its infancy, when a certain amount of difficulties and defects have always to be encountered and overcome.

REGULATIONS.

Since the 1st of January of the present year several changes would appear to have been made in the dairy's regulations. For example, it has been resolved to discontinue for the present any further making of cheese, the price of this article being now so low that it is found more profitable to make use of the skimmed milk for the feeding of swine, and such milk is now returned to the participators—to each in proportion to the delivered quantity of fresh milk at the price of 1 cent per kande. A further admission of new members to participate in the works has also been agreed to, under the conditions, however, that for each cow entered as participator the sum of ten kroners (\$2.70) shall be paid as entrance free, the same to form the foundation of a reserve fund. The number of cows entered is stated to have increased from the original number of 592 up to 954 : and it has in consequence been found necessary to supply the dairy with another large-size centrifuge, and in order that the skimmed milk can be returned to the several suppliers of fresh milk in as sound condition as possible, and when the warm season approaches a heating apparatus will be procured with which the milk can be warmed up to 70° C. (whereby souring will be obviated) to be again cooled down to 10° previous to its delivery from the dairy. The dairy will also be allowed to purchase milk from parties who may not be shareholders, any eventual surplus from such sources to be placed to the credit of the reserve fund, a surplus of profits arising from the milk received from the shareholders to be distributed among said shareholders in the proportion to the quantity of milk received in the course of the year from each member.

Bordeaux Olive Oil.

CONSUL ROOSEVELT.

BORDEAUX, though several hundred miles from the oil-producing districts, is famous as furnishing the most superior olive oil in the world.

The exporters buy the oil from different proprietors in varying quantities and qualities, the latter depending upon the method of cultivation, soil and preparation.

The oil is usually transported to Bordeaux in a crude state, and is here refined. As there is a fixed standard as to color, consistency, and flavor, oils of equally good qualities, no matter from what source obtained, are blended until they acquire the proper standard. To successfully blend oil requires long experience, excellent judgment, taste, and an incorruptible character, since the opportunities to successfully admit adulterants are many. Houses having obtained the public confidence never resort to adulteration. Firms selling adulterated oils find markets only in South America and Mexico. Most of the olive oils exported from this consular district come from the department of Var, in Southeastern France, and the country surrounding Genoa, Italy, and are respectively known as the "huile d'Aix" and "huile de Nice." Large quantities of olive oil are produced in Tuscany, but, owing to the quality, find little demand on this market. Sicilian oils are mostly employed for manufacturing purposes. Cotton-seed oil, enjoying a certain commercial favor, has in no manner affected the Bordeaux oils, as none of the reliable houses here handle it.

Olive oil is exceedingly sensitive, and consequently great attention is devoted to the receiving vats and wells, which, in France, are usually underground. To preserve the oil it is absolutely necessary to keep it in a cool place. The wells are tin-lined, and the vats are usually of tiling cut in the stone.

Poppy, cotton-seed, colza, sesame, and peanut oil are employed in adulterating olive oil. A simple way to test the purity of olive oil is

to put a small quantity on a piece of bread, thoroughly masticate, and if, after swallowing, a disagreeable taste remains in the mouth the oil can safely be condemned; if, on the contrary, a sweet taste remains the oil is pure. The principal exporters of fine olive oil from Bordeaux to the United States are Barton & Guestier, Alexis Godillot, jeune, J. L. Duret & Co., Alexandre Eyquen, J. P. Fourche, L. A. Price, Nathaniel Johnson & Sons, Evariste Dupont & Co., Garres & Versein Fils, G. A. Jourde, Videau & Brun, Louit Frères & Co., F. Cuzol et Fils, Brandenburg Frères, and Lestapis & Co.

During the past seven years the following amounts of olive oil were exported from this port to the United States:

	Value.		Value.
1879.....	\$149,327.86	1883.....	\$217,280.34
1880.....	163,903.72	1884.....	191,358.04
1881.....	189,074.72	1885.....	182,314.25
1882.....	219,577.55		
Total.....			\$1,313,736.48

Exports of Sugar From Cuba.

CONSUL-GENERAL WILLIAMS.

INCLOSE tables showing the exports of sugar-cane products shipped from the various ports of this island to the United States and to other countries during the first quarter of the present year, with the following exhibit of the percentage sent to each of these two destinations, viz:

Port from whence shipped.	To the United States.	To other countries.
Havana.....	70½	29½
Matanzas.....	99 4-5	1-5
Cardenas.....	100	.....
Sagua la Grande.....	100	.....
Caibarien.....	100	.....
Nuevitas.....	99	1
Gibara.....	100	.....
Guantanamo.....	100	.....
Santiago de Cuba.....	82	18
Manzanillo.....	100	.....
Zaza.....	100	.....
Trinidad.....	100	.....
Cienfuegos.....	95½	4½

In forming these tables I have followed the usage here, and adopted the hogshead of sugar of 1,500 pounds net as the unit of weight, reducing all other kinds of packages thereto, according to the scales below:

Scale for Sugar.—1 hogshead sugar=1,500 pounds, net weight; 1 bag sugar=300 pounds, net weight; 5 bags sugar=1,500 pounds=1 hogshead; 1 box sugar=400, net weight; 3¾ boxes sugar=1,500 pounds=1 hogshead.

Scale for Molasses.—140 gallons=1 shipping hogshead; 70 gallons=1 shipping tierce; 35 gallons=1 shipping barrel; 1 gallon=10 pounds; and 1 gallon=70-100 parts of sugar; 7 pounds sugar=1 gallon of molasses.

Therefore, 1 hogshead of molasses=140 × 10 × 70=980 pounds of sugar.

Scale for rum.—1 pipe=1½ hogsheads of molasses.

The accompanying general statement, wherein are recapitulated all the tables, shows that the products of the sugar-cane crop of Cuba exported during the quarter under consideration have found their consuming markets abroad in the proportion of 93.55 per cent. in the United States and only 6.45 per cent. in other countries.

No sugar-cane products have been exported from the important port of Baracoa during the first quarter, the shipments from there having been composed exclusively of fruits, all of which, or say 100 per cent., went to the United States, and nothing to other countries.

EXPORTS DURING THE QUARTER ENDED MARCH 31, 1886.

[Hogshead of sugar of 1,500 pounds weight, net, as unit of measure.]

Ports of Shipment.	To the United States.		To other Countries.	
	Sugar.	Per Ct.	Sugar.	Per Ct.
Havana.....	Hhds.	70½	Hhds.	29½
Matanzas.....	49,714	.....	17,023	.....
Cardenas.....	60,859	99 4-5	70	1-5
Sagua la Grande.....	71,207	100	.....	.....
Caibarien.....	31,373	100	.....	.....
Nuevitas.....	16,344	100	.....	.....
Gibara.....	2,727	99	23	01
Guantanamo.....	1,844	100	.....	.....
Santiago de Cuba.....	12,271	100	.....	.....
Manzanillo.....	4,311	82	943	18
Zaza.....	3,917	100	.....	.....
Trinidad.....	700	100	.....	.....
Cienfuegos.....	2,504	100	.....	.....
	42,427	95½	1,994	04½
Totals.....	291,198	.....	20,053	.....

To the United States.....	per cent.	93.55
To other countries.....	.....	6.45
Total.....	.....	100.00

Trade Apprenticeship in Denmark.

CONSUL RYDER.

IN the annual report from the director of the free schools in this city for the school year from May, 1885, to April 30, 1886, it is seen that special attention has been devoted to this subject, as also to the manner in which the boys on leaving these schools might be assisted in obtaining a careful preliminary teaching of their future trades. It would appear from the report that in the past year much hesitation and difficulty has been experienced by the school authorities in their endeavors to get these boys satisfactorily placed among the various artisans in this city, inasmuch as the master-workmen almost invariably refuse to receive the apprentices as inmates in their own dwellings, and confine themselves to the payment of small weekly wages to these lads, and which for the first year is only a miserable pittance of about 60 to 80 cents per week. It thus becomes most difficult under such circumstances for parents with straitened means to give their children a careful supervision and instruction while learning their future trades; and again the apprentice is thus too often to be found lacking a sufficiency of daily food and clothing as well as of decent lodging.

Whenever the school authorities have in some few instances succeeded in getting some of their young charges placed out in this city, they have always endeavored at the same time to obtain some guarantee that the apprentice should receive a suitable maintenance in his new home.

The greatest part of these children are the sons of severely-trying widows, whose chief pleasure and hope in life is bound up with the welfare of their child; and in some cases the son has been placed in the same workshop where the father had been employed. But as the report truly remarks, it is nevertheless greatly to be deplored that the apprentice in these days is no longer so closely identified with and received as a member of his master's household as was the case in by-gone days.

A strong desire would not seem to be felt on all sides to arrive at some favorable solution of this unsatisfactory state of things, and where the interests of both parties might be made more identical, inasmuch as the relations of employer and workmen should be one of peace rather than that of constant strife.

It would seem, also, to be the wish that the guild system of olden days could again be brought into existence under some new form more adapted to the more advanced views of the present day; and in full accordance with the maintenance and strengthening of the bonds of harmony and good fellow-feeling among all who may be brought together in the same work. In any way it would unfortunately seem to be an undeniable fact that in the present day a very large proportion of the apprentices, both physically and morally, come to grief during the term of their apprenticeship, owing to their lives being passed under such disastrous conditions. They are in the receipt of miserable wages and, in too many cases, insufficiently engaged in learning their trades; in the early period of their apprenticeship being chiefly employed as errand boys for the household work or in fetching drink for the older workmen, thereby laying the foundation of idle habits, with a loss of inclination for his work; and too often in these workshops too many bad examples in the older hands are daily placed before the eyes of these youths. Drink, political discussions, constant strikes, all tend to make the path of the apprentice one of extreme difficulty and danger.

The director of these schools, with all these undesirable facts constantly being brought under his notice, holds firmly to the opinion that the day is not very far distant when a more general feeling will spring up in favor of reverting in some way to the old apprenticeship laws and, at any rate, the attainment of some amelioration in the present condition of the apprentices. He considers that the relations between the two contracting parties must necessarily be of such nature that the employer shall receive full guarantee for the continued services of the apprentice during the entire term of the contract; and that it will be necessary that very clear and precise stipulations should be fixed for regulation the natural rights and duties, with courts established for easy and quick redress where any breach of contract might be speedily heard and adjudged.

As the director, however, fears that it may yet take time before such a desirable change can be introduced, and as the only aid to be found

at present for the partial relief of these hard conditions of the apprentices is the institution under the name of "Apprentices' Home," supported by charitable contributions, but unfortunately only of very limited size, he proposes to make an appeal to the benevolent public for funds to defray the expenses of building and maintaining a school for a course of advanced tuition to the rising generation of handicraftsmen, in which both theoretical and practical work would go hand in hand and a free admission to which might be bestowed upon the most worthy of the boys attending the free schools on their attaining the age of fourteen, and in which school they would receive a training course of one year's duration.

The school should be erected in some convenient part of the city and the pupils employed, according to their natural dispositions and inclinations, during the first part of the day (until dinner time), in good workshops, where they would be instructed in the trades they propose to follow; in the afternoon, in the study of such branches as may be of practical service to them in after life; and in the evening, after tea hours, in receiving a course of instruction in technical knowledge. Such a school, calculated for the reception of fifty boys, he estimates might be maintained at an average expense of \$3,200, and it would be desirable, when sufficient funds were raised, to be in a position to render temporary assistance to the most promising scholars on leaving the school.

In concluding his report the director strongly emphasizes his opinion that it is a social problem of no small importance to arrive at some satisfactory change in the dangerous and highly deplorable condition of the apprentices in the present day.

Farming Implements and Machinery in Italy.

VICE-CONSUL TOUHAU.

THE employment of machinery in farming has not come into general use in the valley of the Po; still, as its advantages and economy are obvious, it has become of late years an important factor in the successful cultivation of the soil. The threshing machine has been adopted into more general use than any of the others. On the left bank of the Po, where the flat, prairie-like character of the country permits the establishment of large farms, the steam threshing-machine has obtained quite a foothold; indeed, many of the largest farms own their steam threshing-machines. The great majority of the farmers, however, rent their machines from some one of the numerous agencies established in the country by English or German manufacturers. It is not unusual for a number of farmers to club together in hiring a machine for their harvest, taking their turn, one after the other, in its use, so that the threshing of the grain generally begins about the latter end of June and is terminated toward the end of August.

In the hilly country on the right bank of the Po the cultivators were slower in adopting the use of machinery. At present, however, the threshing-machine is rapidly superseding the antiquated system of flail-threshing, and small machines of three or four horse-power are considerably used. These machines are rarely owned by the farmers, but are generally hired from some agency merely when needed for a special occasion.

In the beginning the cost of hiring these machines formed quite an item in the farmer's budget, as it amounted to some six or seven per cent. of the entire quantity of grain threshed. This cost is now very much reduced and does not exceed four or at the outside five per cent. The hand threshing-machine has been tried repeatedly, but its use has been abandoned, as it was found that the labor necessary for working it was so great as to render it quite impracticable. Still, it is even yet occasionally used on the very small mountain farms.

Three other machines have come into pretty general use, namely, the draught or fanning machine for cleansing wheat, the machine for shelling Indian corn, and the wine press.

This latter is almost universally adopted, and has, except in rare instances, completely superseded the old uncleanly system of treading out the grapes. The machine for seed-sowing has met with some small appreciation, but is not much used. The flax-crushing machine is, however, making considerable headway.

As for the reaping, raking, and mowing machines, they are scarcely used at all, as the expense of maintaining them in order, to say nothing of their first cost, renders their employment impracticable. It is true the price of these machines is very much reduced of late, but the

low rates of wages make it much cheaper for the cultivators to gather in their harvest by hand than to make the heavy investment of purchasing costly machines, difficult and expensive to maintain in proper working order. These considerations leave no argument in favor of large agricultural machines over hand labor, and the Piedmontese farmer finds that, in an economical sense, he would obtain no advantage in adopting their use. The reaping and mowing machines meet besides with almost insuperable difficulties in their practical use, for the reason that this district is subject to the frequent visitations of violent wind storms, which come tearing down from the Alps and sweeping everything before them; consequently the grain-stalks are tossed and bent in every direction, save in some few sheltered spots where the grain retains its upright position, so that the scythe of the reaping-machine would strike the wheat unevenly, at one time cutting away down, whilst the next moment it would either sweep clear of the bent grain, or merely shave off the ears themselves.

The implements used on farms of any considerable size are the plow and harrow, but the small cultivators work their narrow patches by the laborious use of the hoe and spade.

For wheat, flax, millet, clover, grass, &c., the seed is freely scattered by hand. In planting Indian corn, a furrow is traced by the plow, the seed is cast by hand right in the line of the furrow, after which the blade of the plow is inserted along the seed line, and the soil lightly turned over so as to cover the freshly-sown corn. The bed is then smoothed over with rakes by field hands, who, for this work, are for the most part women.

In reaping, the Piedmontese farmer uses the sickle with an extremely short handle. The wheat is then bound up in sheaves by means of a few strands of straw. For mowing, the long-handled scythe is always used, and the cut grass is turned over, not with pitchforks, but simply with long poles, and when dried is gathered into heaps by means of wooden hand rakes.

China Grass or Rhea-Ramie Fibre.

CONSUL WILLIAMS.

IT has been well said that the name of the China grass of commerce is inappropriate, as the plant, which might appear at first glance like grass, is far removed from the nature of grass. The names "ramie" and "white Chinese nettle" have been given to the white variety, which yields the China grass of commerce. The name "rhea" has been indiscriminately applied to all of the varieties, and the suggestion seems to be proper that this name "rhea" should be used to express the fibre derived from any of the nettles, in the same way that we say "jute" or "flax."

The China grass of commerce is simply the fibre, still containing 20 to 30 per cent. of natural gum, from which it derives its stiffness, and this fibre is peeled principally by hand labor.

There are two or at the most three varieties of this plant which have been successfully cultivated and tested in Europe. They grow best in tropical climates, attaining the height of $3\frac{1}{2}$ to $5\frac{1}{2}$ feet, and even more, and although it is asserted that five or six crops under favorable circumstances may be annually obtained, it would be safer to count on three. One variety of this plant has been grown in England. Although it did not attain a great height or admit of many annual cuttings, the fibre produced was of relative value. The three kinds have been grown side by side in Italy, and yielded the same results.

The plant is perennial, very prolific and propagates from cuttings of the stem or bits of the root; in other words, the cultivation offers no difficulty.

Climate, soil and atmospheric influences being congenial, the culture appears to be simple, except that artificial watering of the plant is required in the hot and dry climate and loose soil of Southern Europe, and seems indispensable except in the few instances where the typical soil and climate can be found. If grown on marshy or wet land the roots are subject to decay.

The mode of cultivating this plant has been so thoroughly treated in consular reports and elsewhere that further reference to it is unnecessary.

STRIPPING RAMIE.

The great obstacle to the more general use of this valuable textile still continues to be in the unsolved problem of finding a rapid,

thorough and economical process or machine for decorticating the fibre.

It is not strange that the effort in this direction has been continuous, as the incentive is so great, when we consider that the supply of this fibre is limited to that which can be obtained from skilled hand labor, capable of stripping only a couple of pounds per day. We must not, however, forget that this Chinese labor costs only about five cents a day (not as yet limited to eight hours nor much influenced by organized trades unions), and is a formidable competitor with any machine which cannot do its work rapidly and economically.

Admirable as this fibre is acknowledged to be in point of lustre, strength, durability and adaptability to a variety of uses, it cannot obtain a fixed commercial value until the time arrives when reliable supplies can be safely depended upon at a market price which will not materially fluctuate. Unlike flax and hemp, the rhea stems have not given good results when exposed to the rotting process, and this method has consequently been abandoned.

Attempts have been made at home as well as in Europe to effect the object by a chemical process. For this purpose the old system of Bralle has been revived. This consisted of immersing the stems in a heated solution of alkaline products, such as green soap, soda, potash, &c. This process has been found impracticable on account of the cost of heating a quantity of about 300 to 400 gallons of water to treat half the number of pounds of stalks, yielding about 15 to 20 per cent. of fibre, and the additional cost of the chemicals required in the solution.

DECORTICATION BY MACHINERY.

It is now generally conceded that the only practical mode of stripping the fibre from the stems is by machinery, and this again can be divided into two classes of treatment, viz., treatment of the green stems and treatment of the stems after drying. A great deal of attention has been given to both methods of treatment, and numerous patents have been taken out and machines constructed for either purpose, but only few have been of practical use.

Having had no opportunity of seeing any of the machines for dealing with the dry stems at work, I cannot express an opinion on their merits.

If machines constructed on this principle could effectually and economically separate the fibre, the difficulty of drying the stems is encountered at the outset. In some countries, and especially in India, the best crops are obtained during the rainy season, when it is quite impossible to dry them in the fields, and to dry them by artificial means is out of the question. The stems in the wet or half-dried state very readily become moldy and ferment, and thus very easily spoil the fibre. Then, again, while the stems, if thoroughly dried, can be easily separated from the wood and the pellicle, and the gum, which becomes very brittle by long standing, can be removed, this is not the case if the stems are not quite dry. In this instance bits of the wood or of the pellicle still adhere to the fibre, and are very difficult to eliminate.

For these reasons it is easy to understand why, if machines which deal with the dry stems might be found useful in special cases, they cannot be considered capable of general application.

For this reason attention has been given to the separation of the fibre from the green stems, and in this we may say that good progress has been made in the right direction, and that the processes which now exist, if not thoroughly perfect, and while the methods are still open to improvement, yet they allow the fibre to be separated in such a way that the process can be carried on on a commercial scale under the present circumstances.

I am indebted to a recent work of P. A. Favier, of Villefranche (himself the inventor of processes, both mechanical and chemical, for the preparation and utilization of the fibres of ramie, and which have been described in the consular records), for the following list of patents for the treatment of ramie taken out since 1882:

In Europe.—Marins Moyret, at Lyons; Billion, at Marseilles; De Puydt, at St. Nicolas (Belgium); Soler, at Paris; Viney, at Paris; Schiefner, at Essonnes, constructed by Fuay & Co.; Bauer, at Paris (of Landtshtia), constructed by Vertoungen; Taylor Burrows, at Lille; Angilbert, at Paris; Allec, at Grenoble; I. Caulec, at Paris (of Landtshtia).

In the United States.—Arthurs, at New Orleans; Émile Le Franc, under auspices of the New York Ramie Fibre Manufacturing Company; T. Albee Smith, St. Louis, Mo.; Gelston Sanford, Brooklyn; L. C. Rutledge, Jamaica, constructed by Heebner & Sons, Lansdale,

Pa.; George Gibson, Pittsburg, constructed by Butler & Gardner, Pittsburg.

The following machines were also placed on trial at Calcutta between the 15th and 20th of October, 1884:

1. The machine of Berthet.
2. Machine of Hatri Bozoah, of Assam.
3. Machine of Pownall, of Wellington.
4. Machine of Cantwell.
5. Machine of H. C. Smith, constructed by Death & Elwood, at Leicester.

The latter was awarded the prize, and worked on the green stalks.

According to the official report this machine treated in ten hours 1,600 maunds of green stems, with a yield of 3.75 per cent., 60 maunds of fibre, the equivalent of 320 maunds of dry stems, returning 18½ per cent.

This machine, although it is said to do its work well, is still open to improvements, especially in regard to the amount of fibre produced and the high cost of the machine itself. A favorable situation as regards the supply of water is also necessary, as will appear from a brief description of the principle involved in the working of the machine.

THE H. C. SMITH MACHINE.

It consists of a drum with beaters revolving at a high speed in front of the feed-plate, through which the green stems are pushed, and thus exposed to the action of the beaters, which not only break the wood in small fragments, but effect also a scraping action on the bark, and cleanse the fibre thoroughly from the adhering pellicle and other vegetable matters, in which they are assisted by a jet of water, which, working under a good pressure from below, forms a kind of flat-water cushion, and keeps the stems exposed to the action of the beaters while at the same time helping in removing the vegetable matter and a portion of the gum. The machine, although originally designed for the extraction of other fibres, has been applied to the treatment of rhea stems.

THE BERTHET MACHINE.

It is claimed by the inventors of machines which treat green stems that these have not been well handled by the distant countries where the ramie is extensively cultivated, and that the supply obtainable in Europe of green stalks affords but little opportunity to exhibit the capacity of their machines, but this difficulty seems in a fair way of being obviated, as Mr. Berthet, of Rouen, assures me that arrangements have been made to test his machine in Algiers as soon as the crop will be gathered, about October or November next, and that at that time an authenticated detail of its daily work will be given.

I had an opportunity of witnessing a trial of this machine recently at Paris, but the test was imperfect, as many of the stalks transported from the South of France arrived in a dry state. The stalks which were green were readily and thoroughly acted upon by the machine, which by its apparent solidity and precision of movement, seemed capable of performing the amount of work claimed for it under favorable circumstances—two hundred kilogs per day, requiring the labor of two men and a boy.

It is the fault of the subject that a more precise direction for stripping the fibre from the stem cannot be given. However, the matter will be soon definitely settled.

UNGUMMING.

The ramie, as before observed, brought from China or India, contains a glutinous substance which prevents combing without previous ungumming. Thanks to the scientific efforts of many who have given attention to this branch of the subject, combined with the practical efforts of such men as Frémy and Berthet, this process is successfully carried out and is commercially profitable.

The theory is recognized that the fibre is accompanied in the bark by three substances—cucose, pectose and vasculose.

These products having been previously estimated by analysis, the necessary amount of chemicals for the ungumming is easily calculated.

The cost of ungumming and bleaching in the works of La Société Générale de Ramie at Malaunay, under the management of Mr. Berthet, is about fifteen centimes per kilog.

The process which passed under my observation was as follows:

(1) The ramie was suspended on sticks in vats of pure water for two or three days.

(2) The water was pressed out and it was removed to a cylinder

filled with heated water and chemicals, under pressure of four atmospheres for six hours, and then rinsed in running water.

(3) It is again subjected to similar treatment in a cylinder of heated water under pressure and containing other chemicals, then washed and rinsed.

BLEACHING.

The Berthet bleaching process was also simple. The ramie, ungummed as above described, was placed in a vat of chloride of lime, then washed and passed through an acid bath, again washed and passed through an acid bath, and washed again, and after passing through a softening bath dried in a drying-room. The average loss in the above treatment is about 300 kilogs. to each 1,000 kilogs.

SPINNING AND DYEING.

The spinning at the Berthet factory was carried on with as much facility as that of any other textile. The capacity of the works was small, consisting of 1,000 spindles, spinning yarn from Nos. 1 to 50. (The French computation is 1,000 metres to the kilogram.) Average cost of manufacture of yarn 2 francs per kilog.; average production in No. 25 yarn, about 175 kilogs. per day.

Prices of Yarn.	Per Kilog.
No. 10.....	frs. 5.00
No. 20.....	5.25
No. 30.....	5.60
No. 40.....	6.45
No. 50.....	7.25
No. 50, double thread.....	7.75
Ramie, combed in ribbon.....	4.50
Ramie in bobbin, round ribbon.....	4.75
Waste of ramie sells readily for.....	1.50

Number of workpeople employed, 14; 3 men, 3.50 francs per day; 11 women, 2.25 francs per day.

The average cost of the ramie ungummed is about one franc per kilogram, delivered at the factory.* This is its market value now.

In the spinning process (1) the bleached ramie is given to a machine with fluted rollers, called softening-machine; (2) then passes to a preparing machine, the back part of which receives the ramie by carrier and delivers in front in ribbons; (3) four machines are required for doubling and droving; (4) passes to combing-machine; (5-8) three droving and doubling machines are required; (9) the last machine is a roving frame, which puts the ribbon on bobbins; (10) flyers, for making yarn.

Every hue and tint can be given to the ramie, and no serious difficulty arises in subjecting it to the usual dyeing processes. Care must be taken to preserve the lustre and permanence of the colors, which is accomplished by the judicious use of caustics. Upon the whole, we can safely say that the fibres of rhea take colors better than flax and tow, and as wool as cotton, wool and silk.

WEAVING.

There is a natural reticence on the part of manufacturers who have employed ramie by itself or in a mixed form to give full information concerning its intrinsic value. This can be ascribed to the fact of the scarcity of the article and the desire which they have to increase their consumption of it as the supply increases. It is readily woven by itself, and forms admirable mixtures with silk, wool and cotton, as well as linen. The machinery differs but little from that required for other articles.

In rendering this imperfect statement, in reply to numerous requests for information on this subject, I have attempted without exaggeration to state the true aspect of the ramie industry, and the conclusion arrived at from the most careful examination and study, which is necessarily limited to a small area, beyond which it was impossible for me to pursue the inquiry, is that a decorticating machine is procurable which will do its work fairly and at moderate cost, and that the ungumming and bleaching process, spinning, dyeing and weaving are as readily and economically effected in the case of rhea as in the case of any other textile and its uses are no less varied and important.

LABORERS' WAGES IN MOROCCO.—When Moorish laborers are paid wages in cash these vary from five cents per day to twenty cents, according to locality and class of laborers; the payment is made daily; the hours of labor are generally counted from sunrise to one hour before sunset, and consequently vary from eight hours in winter to thirteen hours in summer. In towns wages range higher and hours shorter, but these are only for private works.—*Consul Mathews.*

CONSULAR NOTES.

Living of Belgian Laborers.

The ordinary food of the Belgian laborer is composed of potatoes, wheat, or rye and wheat bread, lard, vegetables in the form of soup, and in time of harvest a little pork. Butter from cow's or goat's milk is a luxury attainable but by few, one or two pounds a week for a family, when used at all, being considered as a large supply. Laborers are often the owners of the houses they occupy, with small gardens attached. The houses are generally composed of a kitchen, a room occupied during the day and used at night for a sleeping-room on the lower floor, and two sleeping-rooms above. Where rented, the rental of such a house is from \$2 to \$3.50 per month.—*Consul Slade.*

Food of Italian Peasants.

The staple food of the Piedmontese peasant consists of wheat bread and polenta, a mush of corn meal. In summer the peasant takes his first meal about eight o'clock A. M., just pausing for a few moments in his field labor to eat a hunk of dry bread. About eleven o'clock he returns to the house, where a dish of polenta or some poor mess of vegetable awaits him. In the evening there is again a dish of corn meal or of bean soup, and perhaps the addition of rice or coarse macaroni. In summer there is, in addition to the foregoing, a lunch about three or four o'clock in the afternoon, and at this meal there is an enormous consumption of onions, garlic, melons, lettuce, green peppers, and so forth, which are dressed with oil by the more prosperous ones, but only with a pinch of salt by the less favored companions. Such is the ordinary fare of the peasant, the only difference being when on some high feast-day he may have a couple of sausages to eat with his corn mush. Meat is an article of luxury almost unknown, and is only indulged in on the recurrence of the festival of his patron saint, when there is a family gathering. It is true that now and then a cow or a calf may die a natural death, and if such a death is not produced by an absolutely contagious disease the meat is sold very cheap and that day there is feasting and rejoicing in the village.—*Vice-Consul Touhay.*

The Sugar Industry of Hawaii.

Sugar is the great staple of Hawaii. Immense capital and energy and great intelligence have been spent upon the development of the industry, and the result is an increase in the yield from 12,000 tons in 1875 to an estimated yield of 75,000 to 80,000 tons this year (1885). There are 75,000 acres of land possible for cultivation of cane; but if this should be all utilized, with but one crop in two years as is the custom, the average acreage at best would be but half that quantity. There are plantations, however, situated on the low lands and subject to frequent inundations, and the rich accumulations which they carry with them, which yield a yearly crop, not requiring rest. Two-thirds of the sugar plantations are owned or leased by Americans, and all the crude sugar is shipped to San Francisco refiners. American tact and breadth were never more forcibly illustrated than in the development of this industry. Without labor, with the adverse surroundings in the topography of the country, and other lack of facilities to get their crops to ports for shipment, through patience and the wonderful energy which distinguishes our race, they have transformed the barren valleys and foot-hills into the most productive cane-fields in the world, and brought to their aid all the devices and assistants in machinery that the genius of the age has offered.—*Consul-General Putnam.*

Tools and Machinery in Guadeloupe.

The agricultural tools used in Guadeloupe are the common cast-iron plow, the pick, the large, heavy hoe, the spade, shovel, horse-cultivator and the cutlass, the common two-wheel carts to cart canes. Four-wheeled carts are not used. Some of the plantations where muscovado sugar is manufactured use the common windmill, with rollers; others have water-power, and others steam. The windmills and steam are used on Grand Terre, where there is no water-course; but on Guadeloupe proper, where water is abundant, it is utilized to drive the mills. They use iron rollers to press the canes, and the copper or iron boilers to boil the juice and make the sugar. Now the usines, or central sugar factories, of which there are twenty-one in the colony, are all driven by steam, with the exception of two, which are driven by water-power.

They use the turbines and all the modern improvements used by refineries at home or elsewhere to make white sugar, and their first jet, or first quality of sugar, is very white and pure, testing from 96 to 98 degrees of the polariscope test, nearly the whole of which is shipped to Europe. There are 121 rum distilleries in the colony and they distil about 5,000,000 litres of rum per annum. The machinery is mostly of modern improvement. Most of the machinery for sugar and distilleries is imported from France.—*Consul Bartlett.*

Labor in Antigua.

Labor in Antigua has no recognized organization whatever, and is of that tractable disposition as to be influenced by the depression of sugar, accepting the lowest living rates of payment almost without a murmur. Last year an effort was made by a combination of a few influential planters to do away with the weekly allowance of molasses, but the movement augured such evil results through dissatisfaction of labor that it was very soon abandoned. While the labor is poor and unsatisfactory at best, it is as good as could be expected from the low wages received. The wages paid to laborers are lower since the great depression in sugar. A man in common field labor can only command from 20 to 24 cents per diem, while women laborers can be obtained at a much smaller figure. Managers of estates are paid from \$500 to \$1,000 per annum, with extras of a horse, a servant and house-rent free. Overseers are paid \$200 to \$500 per annum, a servant provided and house-rent free. The list here given is a fair average of wages paid per day to laborers on a sugar estate: Women, as weeders, 12c.; boys, as weeders, 10c.; girls, as weeders, 10c.; men, as cane-cutters, 36c.; women, as tiers, 24c.; men, as carters, 24c.; men, as loaders, 24c.; men, as engine-drivers, 48c.; boys, as assistant engine-drivers, 8c.; men, as pan-boilers, 32c.; men, as stokers, 48c.; men, as mill-feeders, 48c. Allowances, one quart of molasses per week and house-rent free. Services of physician paid by the estate.—*Consul Jackson.*

Agricultural Tools of Demerara.

The tools used in Demerara are the spade common to the country, 9 inches by 4½ inches broad, fixed into a long wooden handle; the steel three or four pronged fork; a heavy clay hoe, 8 inches to 6 inches face, 4 inches to 5 inches deep; and the cutlass. The customary legal rate of wages paid to agricultural laborers is 24 cents for seven hours in the field, but it is quite customary to work by piece-work, when an able-bodied man working ten hours can complete three tasks for 72 cents. Women and children are paid proportionately less; payment is made weekly.—*Consul Fyfelesmy.*

Agriculture in Belgium.

A severe agricultural crisis has existed in Belgium for several years past, and as a result the value of land has depreciated from 25 to 33 per cent. At the present time the net revenue from land has diminished in very many instances from 50 to 60 per cent., and in numerous instances the cultivation has been entirely abandoned. As to the causes of this crisis opinions widely differ. The landed proprietors claim that it is owing to free trade in cereals, and that the only way to re-establish agricultural prosperity is by tariff upon their importation. This proposition is, of course, opposed by the working classes, to whom cheap bread is the great desideratum. At the last session of the legislative assembly a tariff law was introduced, but by a very considerable majority failed on its passage. It is probable the attempt will be renewed, with what result no one can forecast. Unquestionably the largely increased importation of cereals has materially contributed to the agricultural depression. Thus, in 1873, Belgium imported 1,425,559,924 and exported 412,531,253 pounds, making an excess of imports of 1,013,028,671 pounds, while in 1883 she imported 2,882,792,160 and exported 1,091,171,002 pounds, making an excess of imports of 1,791,621,158 pounds, and an increase for 1883 over 1873 of 778,592,487 pounds, a much larger proportional increase than that of the population during the same period.—*Consul Slade.*

Lack of Enterprise in the Argentine Republic.

If the indolence and indifference to progress of the lower classes of the Argentine people were not known it would be difficult to explain how such an industry as the production of cochineal, at once so simple and so easy, is permitted to be so neglected, since in the interior

provinces the aridity of the soil and the dryness of the climate indicate them as admirably suited for the business, and I do not think that it could possibly fail to pay large profits on a very moderate capital. What would be easier than to establish nopal plantations in the basin of the Cuyo, where it seldom rains, and where the *Opuntia* grows naturally? All through the level interior, and especially in the provinces of San Luis, Rioja, Catamarca, Santiago del Estero, and certain portions of Cordoba and Tucuman, the plant is found in the greatest abundance, and the insect is reproduced spontaneously. It is an industry which can be prosecuted by any person who has enterprise and a few hundred dollars capital. That which is obtained now without care and without cultivation will give some idea of what such an industry would yield if properly conducted. It is probable, however, unless foreign enterprise comes in and takes advantage of the openings which the Argentine Republic offers in the several industries or the production of dyeing materials which I have mentioned, that they will remain undeveloped for as many centuries in the future as they have in the past.—*Consul Baker.*

Dyes and Dyestuffs of the Argentine Republic.

Nothing has ever been done in the matter of making the dyes and dyestuffs of the Argentine Republic articles of foreign commerce. In spite of the fact that all parts of the republic are so rich in the materials, there has scarcely been a movement toward their utilization beyond the meagre demands of a few spindles and hand-loom in the interior provinces, the people importing quite all the threads, yarns, and woven goods used in the country. That there is a field here for the building up of a large trade in coloring materials scarcely admits of a question. In regard to most of the articles above enumerated, they are found or grow spontaneously in the country, and are immediately accessible along the shores of the Upper Parana and the Paraguay. The lepacho, the quebracho, the algarrobo, &c., grow in great quantities and wonderful luxuriance all along those rivers; while as to the rest, there are railways leading through the provinces where they are found.—*Consul Baker.*

Agricultural Implements in Morocco.

The hoe and the pickaxe play a very important part in the field labor of Morocco; but for grain-sowing a primitive plow of native make is used. It consists of a long, curved pole, with an iron sock about eighteen inches long; a wooden cross-beam is fastened to the pole, from which starts the gear which fastens the steer to the plow. This machine is drawn by bullocks, mules, asses, horses, camels, and sometimes men and women are fastened to assist over rough ground. The threshing is done by sticking a long pole in the midst of the pile of grain and fastening to it a number of beasts of all sorts, making them trot over the grain until it is broken from the husks. After that the grain is thrown up in the air, by means of wooden shovels, until the air separates the chaff from the grain. No machinery is used beyond what is stated above. Of late years some American plows and agricultural machinery have been introduced, but there is no end of difficulty to wean the natives from the customs of their sires, and the introducers of the implements must either work themselves or get foreign workmen to do so until the natives learn their management.—*Consul Mathews.*

It is not generally known that crude petroleum has all the properties of animal oil for hardening and tempering. It has the additional advantage of being always fluid and ready for use, when in cold weather lard-oil or tallow has to be warmed or melted before it can be used. In fact, petroleum seems to act on steel in hardening more readily than animal oil. One great merit is its cheapness. For spring tempering it "blazes" off on work as readily as other oil.

At a recent meeting of the Industrial Society of Mülhausen, Alsace, the president reported on the recently-invented perforated window-panes, which are said to be admirably adapted for hospital purposes, inasmuch as they admit fresh air, while preventing a draft. Each square metre of glass contains 5,000 holes, which are of a conical shape, widening toward the inside. Many hospitals have already adopted these window-panes, which are the invention of an engineer of the name of Henkel.

Foreign Notes.

Brazil.

Borstelmann & Co., Pernambuco, September 28, write about the sugar crop that the weather had been favorable to the canes during the month, so that receipts may soon increase unless planters either keep the sugar on hand some time longer or leave the canes in the field, the present low prices not covering the cost of manufacture in the province. So far the receipts had averaged 722 bags daily. The campaign opened with a purchase for New York of 5,000 bags Pernams and 13,000 Goiannas at 1,250@1,450 reis. Shipments since October 1 were 93,400 tons, against 116,927 in 1885. As for outports, planters are consigning whole cargoes of sugar from the Rio Grande estates to New York, instead of accepting the low prices offered them in port.

F. W. Winkel writes from Bahia, September 25, that sales of old crop and new sugars had been made to the extent of 4,000 bags Nos. 7 to 8, at 1,200@1,300 reis the arroba, and 4,000 bags select Nazareths at 1,150, all for New York. Increased receipts of new sugars were expected. Of cocoa there had been sold 3,000 bags good ordinary at 8,000@8,150 reis the arroba and 400 common at 7,800. Rosewood was dull and without anything doing. Of redwood 12,000 arrobes good current quality were placed at 700 reis the arroba, and finest at 850. Freight, per steam to New York, 15s. and 10 per cent. primage. Exchange, 21½d.

The *Diario Official*, of Rio, states that in September one of the central sugar houses consigned to that city 100 tons of superior quality white crystallized sugar made on the plantation after the most approved Demerara style, thus opening up a new era in sugar making in Brazil. Following are the coffee statistics:

SHIPMENTS FROM RIO DE JANEIRO DURING THE FIRST EIGHT MONTHS.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe..... bags.	272,673	219,070	183,287	203,455
United States.....	309,476	400,498	370,611	302,043
Cape of Good Hope.....	6,650	7,800	14,100	5,600
La Plata, &c.....	8,278	14,486	12,405	6,546
Totals.....	687,077	651,754	580,403	517,644

DURING THE FIRST NINE MONTHS.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe..... bags.	432,016	367,334	308,850	303,016
United States.....	542,850	611,316	639,833	485,266
Other countries.....	25,000	30,950	48,300	46,816
Totals.....	999,866	1,009,600	996,983	835,098

FROM SANTOS DURING THE FIRST EIGHT MONTHS.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe..... bags.	252,113	168,283	132,516	245,633
United States.....	51,166	78,100	125,110	50,500
Coastwise.....	233	616	1,750	167
Totals.....	303,512	246,999	259,376	296,300

DURING THE FIRST NINE MONTHS.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe..... bags.	405,066	253,450	193,183	354,166
United States.....	66,850	114,266	213,450	72,983
Totals.....	471,916	367,716	406,633	427,149

Burmah.

Up to the middle of October the export of rice from Burmah and other countries to Europe had been as under:

	1886.	1885.	1884.	1883.
From Rangoon..... tons.	304,000	339,320	351,770	346,500
Akyab.....	116,200	102,720	88,240	105,550
Bassein.....	158,000	171,260	115,660	154,390
Moulmain.....	46,400	43,060	37,070	43,200
Calcutta.....	45,703	39,425	34,916	105,557
Madras.....	280	25,188	10,427	11,955
Saigon.....	.....	8,781	10,487	1,702
Bangkok.....	.....	2,024	24,397	.....
Bombay.....	946	4,100	520	.....
Java.....	2,520	2,960	1,031	.....
Japan.....	34,645	5,350	48,232	9,635
Totals.....	708,694	739,128	815,679	845,520

ARRIVALS OF RICE IN EUROPE UP TO OCTOBER 15.

	1886.	1885.	1884.	1883.
At London..... tons.	111,825	93,707	106,666	159,393
Liverpool.....	147,051	113,785	140,353	128,208
Bremen.....	127,890	153,379	120,001	140,553
Hamburg.....	47,231	44,544	42,748	39,971
Holland.....	90,880	81,175	92,672	84,414
Belgium.....	47,470	42,822	46,541	43,217
Copenhagen.....	8,525	6,176	12,398	10,458
Flensburg.....	7,122	8,754	8,930	8,115
Scotland.....	.....	.....	.....	.....
Total Northern Europe.....	591,995	544,542	570,309	614,320

	1886.	1885.	1884.	1883.
France..... tons.	22,566	23,056	27,691	78,293
Italy.....	36,552	35,940	77,801	54,174
Trieste and Fiume.....	19,052	24,810	17,047	12,144
Odessa.....	1,579	1,740	3,294	3,747
Turkey.....	.....	.....	1,330	1,449
Total Southern Europe.....	79,749	85,546	127,163	149,807

Grand totals.....	671,744	630,088	697,472	764,133
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AFLOAT FOR EUROPE OCTOBER 15.

	1886.	1885.	1884.	1883.
From Calcutta..... tons.	875	422	1,346	4,022
Madras.....	.....	.....	1,776	9,155
Akyab.....	11,321	9,258	9,912	36,245
Rangoon.....	23,060	57,833	40,980	49,471
Bassein.....	30,908	45,230	19,126	20,741
Moulmain.....	.....	845	3,808	1,656
Java.....	.....	.....	.....	.....
Saigon.....	.....	.....	28,681	1,080
Bangkok.....	.....	1,375	11,205	.....
Chittagong.....	.....	.....	.....	.....
Japan.....	2,395	.....	.....	.....
Totals.....	68,568	114,972	125,924	122,370

British Guiana.

Advices of October 20, from Georgetown, Demerara, state that many estates are now at work, but that the long looked for improvement in business has not appeared. Several parcels of 96 degrees test centrifugals have changed hands at \$2.47½@2.50. The bulk of the crop is going to the United States, but it is understood that many estates will now manufacture yellow crystals for the English market.

China.

Siemssen & Co., Hong Kong, make the statement of tea shipments from all China to September 9 as follows:

	1886-7.	1885-6.
To England..... lbs.	104,350,853	102,586,663
the United States.....	17,269,811	16,936,458
Continent (without Russia).....	1,091,666	1,462,047
Russia.....	11,486,597	7,858,085
Australia.....	15,971,206	15,114,770
the Cape of Good Hope.....	389,000	1,127,140
Totals.....	150,550,133	145,085,163

The increase to Russia and decrease to the Cape will be noticed.

The Chinese Government has resolved to organize a postal service throughout the country on the most approved American and European model. The service is to be initiated preliminary between the interior and all of the treaty ports, so that the foreign post-offices in the latter will be replaced by Chinese.

France.

The French vintage came to a termination the last week in October everywhere, and the result is, on the whole, highly satisfactory, both as regards quantity and quality. The total yield exceeds that of 1885, and the quality is superior. The champagne has greatly suffered from the mildew, so that grapes have run irregular, causing proprietors to make red still wines to a notable extent instead of having the whole turned into sparkling wine as usual. The Gironde is not quite satisfied in point of quantity, except the Médoc, which has been singularly fortunate in both items. The South of France has an ample crop and desirable quality. The new campaign opened in the vicinity of Bordeaux with a sale of 200 tons Paysans de Portets at 650 frs.

The *Journal des Fabricants de Sucre* states that, with its abundant crop and exceptionally good quality of sugar this year, France will have available for export 50,000 to 100,000 tons more sugar than last year. The price toward the close of October was 31.50 frs. white No. 3, against 48.25 in 1885 and 44.75 in 1884. The visible supply in Europe and America, Cuba included, was at the time 707,891 tons against 877,082 in 1885.

Silk was looking up decidedly at Lyons in October and higher prices were being paid than at any time for a year past. The outlook in silk goods was also encouraging and the impression was that a favorable campaign is drawing near.

Germany.

The iron trade both in Rhenish Westphalia and Upper Silesia has been getting into better shape. Pig-iron was looking up in the former, so far as forged pig was concerned, but not foundry pig, and as for the latter district production is still excessive, for, though curtailed, stocks will last till April, 1887. Finished iron is active in both districts, but not yet higher in Rhenish Westphalia, while the Russian demand begins to improve prices in Upper Silesia. Taken as a whole, the outlook in the iron and steel trades in Germany is reassuring, except in steel rails, which are lower than ever, 104 marks per ton at the works.

There has been lively discussion in the German press as to the advisability of capitalists in that country, at Frankfurt in particular, investing such enormous amounts of money in Russian and Argentine bonds. Although both countries are prosperous and vigorous, and pay their coupons with scrupulous punctuality, Russia may, for aught people know, be on the brink of a gigantic war, and the Argentine Republic is an essentially revolutionary country, in which the political element of bad lawyers and military men is in a latent state of ferment, chronically ready to burst into flame at any moment. At least, so the conservative German press asserts.

Greece.

Cremidi & Brethauer, Patras, October 16, express themselves about the currant market to the following effect: There has again been a remarkable degree of firmness, there being but 850 tons of available goods on hand. The offer of 16s. free on board, was declined. We quote, in barrels, prime Filiatra, 16s. 9d.; prime Achaia, 16s. 9d.; prime Patras, 17s. 6d., free on board. In Vostizza the market has been cleared of currants; at Pyrgos the market is firm, after rather large dealings,

at 16s. 6d., free on board, in barrels. In Calamata there has been great animation, a good deal having been taken for Marseilles at 16s. 3d., free on board. In the province holders show great stiffness: Marseilles bought there 950 tons at 16s., free on board, and there are more buyers of large lines at this figure. Nothing has been purchased for Paris account. Bordeaux bought at 16s. 3d., free on board. Unfavorable reports from New York have stopped buying for that quarter for the moment. The steamer Como sailed. Freight to England, 15s. and 10 per cent. primage. Exchange, 33.40 frs. the £. three months' sight.

Holland.

The *Nederlandsche Courant*, in its October monthly review, remarks that the extraordinary advance in coffee to 35½c. the half kilog. for good ordinary Java at Amsterdam and 12½c. fair Rio at New York was chiefly due to wild speculation and rumors that the blossoms of the growing coffee crop in Brazil had suffered from inclement weather. Following are the statistics which the *Courant* exhibits:

ARRIVALS DURING THE FIRST EIGHT MONTHS.					
	1886.	1885.	1884.	1883.	1882.
Europe.....tons.	240,930	314,740	288,140	343,680	287,300
America.....	151,992	145,930	123,169	134,587	130,868
Totals.....	392,922	460,670	411,309	478,267	418,168

DELIVERIES.					
	1886.	1885.	1884.	1883.	1882.
Europe.....tons.	286,780	281,640	256,590	278,080	255,150
America.....	157,294	154,571	139,305	135,313	131,758
Totals.....	444,074	436,211	395,895	413,393	386,908

STOCK SEPTEMBER 1.					
	1886.	1885.	1884.	1883.	1882.
Europe.....tons.	128,300	184,400	188,100	189,500	151,100
America.....	28,387	29,206	23,323	23,427	24,691
Totals.....	156,687	213,606	211,423	212,927	175,791

to which have to be added unsold in the hands of the Netherlands Trading Company, picul bags of 134 pounds net: 1886, 219,600; 1885, 494,600, and 1884, 441,000.

AMERICAN MOVEMENT.					
	1886.	1885.	1884.	1883.	1882.
Import, 8 mo's.....tons.	151,992	145,930	123,169	134,587	130,868
Consumption.....	156,112	154,471	139,194	127,473	126,025
Re-export.....	1,182	100	111	7,846	5,733
Total deliveries.....	157,294	154,571	139,305	135,313	131,758
Stock, September 1....	28,387	29,206	23,323	23,427	24,691
In spite of higher prices, American consumption was greater than ever.					

India.

The Bengal indigo crop is estimated at 130,000 factory maunds. The London October sales show the following sorts catalogued and amount in cases:

	1886.	1885.	1884.	1883.	1882.
Bengal and Tirhoot.....	1,799	2,119	1,790	1,123	1,530
Oude and Plant Oude.....	257	620	2,188	489	1,180
Madras and Vellore.....	218	323	525	1,122	610
Kurpah.....	3,091	1,408	3,850	3,358	2,595
Other sorts.....	1,085	244	81	188	125
Withdrawn prior to sale.....	450	336	316	380	245
Totals.....	6,000	5,050	8,750	6,660	6,195
Stock October 1.....	14,860	11,423	17,176	12,477	13,514
Deliveries Jan. 1 to Sept. 30.....	14,660	16,361	18,462	16,428	17,644
Shipments from Madras to Europe Sept. 1 to August 31.....	12,392	6,472	16,612	13,250	14,077

The Madras crop will be an average one. Madras September shipments amounted to 1,000 cases, of which 300 for London. On October 20 the Guatemala sales of 700 seroons indigo came off in London.

Java.

According to a cablegram of the last week in October, the government estimated its coffee crop at 801,850 piculs and will sell at auction in Holland about 75,000 piculs each sale during 1887. The sale which the government held on September 29 at Batavia consisted of 25,000 piculs, which brought 35.33 to 37.20 guilders the picul. On September 27 the government sold at Padang at auction 9,000 piculs at 53 guilders per picul on an average. Of this coffee 6,000 piculs were upland coffee, bringing 52.25 guilders the picul.

Sugar planters as per latest dates, being in a state of expectation of relief from the home government, have shown more firmness. The Dutch Ministry seem to recognize that the present state of the island is owing to the Continental bounty system, by which alone the beet-sugar industry has reached its present proportions.

Mauritius.

Advices from Port Louis, dated October 1, stated that the sugar estates stood at the time very much in want of rain. Comparative sugar exports to September 28:

	1886-7.	1885-6.	1884-5.
To United Kingdom.....tons.	510	2,102	2,631
France.....	7	—	—
Australia.....	1,761	882	3,195
New Zealand.....	269	338	1,455
Cape of Good Hope.....	1,063	433	432
Bombay.....	1,037	6,627	8,140
Calcutta.....	531	—	—
United States of America.....	—	364	—
Other places.....	1,362	129	107
Totals.....	6,540	10,875	15,960

Philippine Islands.

The *Gaceta* publishes particulars of the amounts of customs revenue collected in the islands during the fiscal year 1885-6, which have reached the respectable sum of \$2,207,038. The Spanish Minister of Finance estimates in his budget for 1886-7 that the income from this source will yield \$2,176,500 for the current fiscal year.

Following are the sugar shipments from the three ports up to August 16:

	1886.	1885.	1884.
To Great Britain.....tons.	21,649	19,485	12,129
United States.....	105,152	87,204	55,453
Sundries.....	16,866	21,099	15,052
Totals.....	143,667	127,788	83,534

Russia.

The Russian Government seems to feel called upon to follow in the wake of the United States in the way of drawback reform on sugars shipped abroad. Russia seems likewise to become aware of the severe strain upon her exchequer caused by this year's shipments of crystals under the heavy premium given on export, and has issued a new order for regulating the future production of beet sugar. As far as we can judge, it is likely to check, or at least materially reduce, future exports, as well as tend to restrict the industry within the limits of their home demand. The Russian Government will charge the excise of R. 0.85 on a quantity of 17 million poods = 273,200 tons, but upon anything exceeding this the duty will be about R. 2.50, while upon exportation it is intended to give no extra premium. For next season, 1887-8, the factories will be charged the single duty on 20 million poods, and it is believed that they will be permitted to hold over the excess in this year's production until next season without being called upon to pay the extra duty at once. Should this arrangement be agreed to by the government it would tend to reduce the sowings for the next season, 1887-8, as well as reduce the export this year. The crop prospects are by no means so satisfactory as at one time reported, and it seems probable that the production will not exceed by more than some 50,000 to 60,000 tons the actual wants of consumption. As manufacturers will, in the absence of any bounty, probably avail themselves of the permission to hold these over till the next crop rather than accept anything like current rates, the quantity available for export is not likely to be important. Further advices from Russia state that the recommendations of the finance department have not received the approval of the highest authority, and the question will therefore have to be reconsidered.

Spain.

The vintage of Spain was drawing to a close about the middle of October. In spite of the apprehensions about the damage done by mildew and in the South of the phylloxera, the amount of wine secured will be larger than last year, while the quality will be greatly superior. About the only regions in Spain not content in point of quantity are the Riojas, Navarre and both Castiles; the rest is more than satisfied. Quality will prove superior throughout, even in the regions where the crop is short. The general result is all the more welcome, as in Portugal the crop is short, though quality will be unsurpassed, and the Italian vintage is deficient. Prices were held too high for extensive dealings in new wines, but the tendency was in favor of buyers, the more so as a good many old wines were still pressing on the market. The first new Spanish wines had arrived at Certe and Bordeaux, and pleased very much.

West Indies.

CUBA.—During September and October the weather has singularly favored the growing canes, so much so that there are prospects the 1886-7 sugar crop will reach 850,000 tons instead of 750,000 the previous campaign. Following are the statistics as they stood on October 2 at Havana and Matanzas:

	Boxes.	1886. Bags.	Hhds.
Weekly receipts.....	—	1,827	—
" clearances.....	1,835	38,364	801
" to Channel and U. K.....	—	—	—
Total receipts, including stocks on January 1.....	63,609	1,736,832	59,655
" shipments to all ports.....	43,389	1,444,978	64,383
" Channel and U. K.....	—	—	—
" Stock.....	27,154	428,867	6,880

	Boxes.	1885. Bags.	Hhds.
Weekly receipts.....	118	840	471
" clearances.....	422	47,319	2,596
" to Channel and U. K.....	—	—	—
Total receipts, including stocks on January 1.....	117,305	1,219,867	163,388
" shipments to all ports.....	70,437	910,522	145,154
" Channel and U. K.....	2,538	78,341	6,553
" Stock.....	26,916	263,309	13,522

TRINIDAD.—As per latest advices, dated October 2, the weather continued on the whole favorable for the growing crops. Shipments up to date compared as follows:

	Hhds.	Tierces.	Bags and Barrels.
1886.....	22,578	12,275	193,248
Of which to America.....	13,295	11,491	104,544
1885.....	40,858	12,181	197,130
1884.....	42,224	9,104	136,163

The cocoa crop will commence to be gathered toward the close of October, but receipts will not be steady and ample before November-December. Ordinary quality was selling on October 2 at \$15.25@15.50 the fanega. There had been shipped since January 1, 14,737,350 pounds, against 13,141,630 pounds in 1885. Refined asphaltum was bringing \$12.60 per ton, and crude \$6. Shipments to date amounted to 30,450 tons, against 24,845 in 1885.

Review of the Markets.

Reports for the Month ended November 1.

Butter.—There is a fair supply and there is a better demand in the market. Fancies are steadier. We quote: Creamery, 21@29c.; State dairy, 21@25c.; Western, 8@18c.

Cheese.—The market closed firm as to fancy lots and steady as to other grades. Trade is fair. We quote: State factory, fancy, colored, September, 12@—c.; do., fancy, white, September, 11½@11¾c.; do., choice, 11½@—c.; do., fine, 11½@11¾c.; do., good and fine, 10½@11c.; do., fair, 9@9½c.; do., common, 8½@9c.; Ohio do., fine, flat, 11@11½c.; State do., night skims, 8½@9½c.

Coffee.—Rio grades are firm at 12½c. for fair cargoes on spot, this being the inside figure and some parties asking ¼c. more. The futures are higher. The market at Rio holds its own, but Havre is feeble. The Rio monthly coffee statement of William Scott's Sons is as follows:

Stock in warehouses October 1, 1886.	bags.	332,390
Received since		
At New York	bags.	209,140
Baltimore		34,691
New Orleans		23,689
Galveston		4,161
		271,681
Total supply		604,071
Delivered from warehouses since—		
At New York	bags.	198,214
Baltimore		26,406
New Orleans		31,900
Galveston		1,000
		257,520
Stock in warehouses November 1, 1886—		
At New York	bags.	267,945
Baltimore		51,558
New Orleans		23,887
Galveston		3,161
		346,551
Afloat and loading for United States to September 28.		21,902
Purchased for United States to October 30 (69,000 Santos).		207,000
Total visible supply November 1, 1886.	bags.	575,453

All mild grades are well sustained and are in fair demand. We note sales of Maracaibo at 13c.; Mocha at 17½@17¾c. We quote: Rio, ordinary cargoes, per pound, 11½c.; fair do., 12½c.; good do., 12¾c.; prime do., 12¾c. Santos, fair to good cargoes, 12½@12¾c.; Java, 13@23¾c.; Singapore, 11@13¾c.; Ceylon, 9½@12½c.; Maracaibo, 12@14c.; La Guayra, 8@11c.; Jamaica, 10@12½c.; San Domingo, 9@9½c.; Porto Rico, 10@12½c.; Central America, 11@14c.; Mexican, 11½@13c.; Angostura, 11½@12½c.; Savanilla, 11@14c.; Mocha, 19@21c.

Cotton.—Option have been doing a moderate business, the market closing firm but quiet. Spot is in light request and is steady at 9½@9 7/16c for middlings. Closing option figures were: November, 8.90@8.91c.; December, 8.97@8.98c.; January, 9.05@9.06c.; February, 9.13@9.14c.; March, 9.23@9.24c.; April, 9.33@9.34c.; May, 9.42@9.43c.; June, 9.51@9.52c.; July, 9.59@9.60c.; August, 9.65@9.66c.

Dry Goods.—As a whole, the past month has been dull in the dry-goods market, and new business has been of very moderate proportions. In the woolen market there has been no special activity, and the market has been more quiet than otherwise. Of old heavy goods the supplies of any description are very small, when compared with those of any corresponding period, and still request for duplicate assortments are taking a fair quantity. Of worsted coatings, chevots, all-wool fancies, cotton-warp cassimeres, satinets, ladies' wear specialties, &c., a large business is in progress, which will take care of the greater part of production up to the close of January. Flannels and blankets have grown quieter, and the condition of the supply is very satisfactory. Underwear, hosiery and knit goods have a well-sustained demand for moderate assortments, while for gauze underwear and cotton hosiery makers are more heavily under orders than ever. The new demand for cotton goods is irregular, beyond the call for special styles to meet current requirements. There has been a good movement on orders, which has taken up the daily receipts in very good shape. Stocks with agents are very much broken in assortment. Exporters have been doing more in the way of inquiries, but new business reported is of very moderate proportions. Printing cloths have quieted down as to demand, a feature not unexpected with the production of the next two months well contracted for. Still, a fair request has been preserved under the circumstances. Quotations are steady at 3½c. for 64x64 cloths, and 3½c. for 56x60 cloths. Prints have been in irregular demand, yet in one way and another a very fair aggregate has changed hands. Dark fancies and staples are less than the usual moderate stock, while of specialties the clearing up has not secured much, owing to the previously steady to good demand during the period of largest distribution by jobbers. The imports of foreign dry goods at this port for the closing week amount to \$1,872,946, showing a decrease of \$65,109 as compared with the previous week, and a decrease of \$29,927 as compared with the corresponding week last year. The total of goods marketed for the closing week has been \$1,998,692, or \$125,146 more than the imports. The total imports since January 1, 1886, have been \$99,053,883, against \$85,304,227 for the same time in 1885, or an increase of \$13,749,656.

Drugs and Chemicals.—During the month there has been quite an improvement in the market. There has been more demand, and in some cases prices have advanced. We quote: Soda ash, \$1.35; bleaching powder, 1.95@2c.; caustic soda, \$2.56½; sal soda, 95@10c.; acetic acid, 3c.; oxalic acid, 6½@6¾c.; citric acid, 58@59c.; tartaric acid, 43@45c. for crystals and 44@46c. for powdered; acetate of lime, 1.70@1.80c. for brown; aloes, 6½@7c. for Cape and 11@12c. for powdered; alum, \$1.75@1.87½ for lump and \$1.87½@2 for ground; ammonia carbonate, 8½@9c. for English and 9@9½c. for D. and O.; assafetida,

8½@9½c.; arnica flowers, 7½@10c.; albumen, 17@18c. for foreign blood; arsenic, 2½@3½c.; balsam copaiba, 37½@41c.; balsam tolu, 40@43c.; balsam Peru, \$1.30; bichromate of potash, 9½@10½c. for Scotch; borax, 6@6½c. for refined in bbls.; blue vitriol, 4½@4¾c.; brimstone, \$21.50@21.75 for seconds; buchu leaves, 9@10c. for shorts and 21@25c. for longs; cantharides, \$1.95@2.15 for Russian; camphor, refined, 22½@24c.; castor-oil, 17@17½c. in bbls. and cases; cardamoms, 55@65c. for Aleppy and 70@90c. for Malabar; cassia buds, 10½@11c.; camomile flowers, 6@10c. for old and 18@20c. for new German; cutch, 6½@7c.; chlorate of potash, 16½@16¾c. for crystal and 16½@16¾c. for powdered; cochineal, 30@31c. for Teneriffe silver; cream tartar, 34½@35c. for crystals and 35@36c. for powdered; gambier, 4½@5½c.; ginger, 16c. for Jamaica bleached and 10½@12c. for unbleached; glycerine, quoted 15@19½c.; Guarana, \$1.50@1.62½; iodide of potash, \$2.20@2.30; ipecacuanha, 82½@87½c., and powdered, 87½@90c.; licorice paste, 27@28c. for P. & S., and 30@32c. for Corigliano; manna, 70@75c. for small flake and 95c. for large flake; morphine, \$1.05@2.25 for domestic; opium, \$2.82½@2.90 for new, duty paid; oil cloves, \$1.50@1.60; oil cassia, 60@65c.; oil anise, \$1.75; oil lemon, \$1.50@2.12½, as to brand; oil sassafras, 35@38c.; oil wintergreen, \$2.05@2.10; oil bergamot, \$1.75@2.40; oil peppermint, \$2.61@2.87½ in tin and \$3.30@3.50 in glass; prussiate of potash, 19c. for American yellow; quicksilver, 53½@54½c.; quinine, 49c. for German and 58@65c. for American; roots, 4½@4¾c. for gentian; Seneca root, 43@45c., and Colombo root, 9@12c.; ginseng, \$1.50@1.90; sarsaparilla, 9@10½c. for Mexican; seeds, 4½@5c. for Trieste brown mustard and 4½@4¾c. for California yellow; senna, 30@35c. for Alexandria; shellac, for D. C. and L. B. over and S. under, 21@22c. per lb.; V. S. O., 16@16½c. per lb.; I in diamond, 15c. per lb.; sticklac, —c. per lb.; sugar of lead, 6½@7c. for brown and 12c. for white; Tonka beans, \$1.50@1.60 for Angostura.

Freights.—In a general way there is less doing, but rates are steady. Berth room attracts a fair amount of attention for cotton, flour and provisions, and as a rule full rates are being had. The chartering movement is very light. There is continued interest in sail tonnage for petroleum, lumber, coal and miscellaneous cargo, and steam carriers are sought after for grain and cotton. Sail tonnage for cotton is reviving after a time of remarkable dullness.

Quotations from New York to United Kingdom and Continental ports:

Steam.	Grain.	Oilcake.	Flour.	Sugar.	Provisions.	Cheese.	Beef.	Pork.	Cotton.
Liverpool.	4½	12.6	15.	18.9	20.25	25@30	3.9@4.6	3@3.6	11.64@13.16
London	4½	12@15	13.9@15	15.	25.27	27.6	4.6	3.3	...
Glasgow	4½	12.6	15.	22.6	20.25	30.	4.	2.9	...
Bristol	5.	15.	15.	25.	22@25	30@35	4.2@5	3@3.6	...
Leith	5.	15.	17.6	22.6	22@25	30.	4.6	3.3	...
Hull	4½	15.	17.6	20.	22@25	30.	5.	3.9	...
Newcastle.	5.	15.	17.6	20.	22@25	30.	5.	3.6	...
Antwerp.	5.	17.6	16.3	20.	25.	30.	5.	3.	3.16@7.32
Hamburg.	70.	15.	17.6	20.	1m.	...	...	...	7-32d.
Bremen.	70.	15.	17.6	20.	1m.	...	...	...	7-32d.
Copenh'n.	3.9@4	...	...	20.	25.	35.	5.	4.	...
Marseilles.	3.9	...	...	...	30.	...	...	...	...

Cork for orders, sail, 3s. 9d. @4s.; steam, 3s. 9d. @4s.. Direct port, United Kingdom, 3d. @6d. less.

OIL QUOTATIONS.

	Refined Petroleum.	Naphtha.	Cases.
Cork and United Kingdom.	2.6 @2.10½	2.9 @3.1½	15@16
Direct port, United Kingdom.	2.1 @2.7½	2.3 @3.	Adriatic..... 14@15
Direct Continent.	2.1 @2.7½	2.3 @3.	Mediterranean. 14@15
Baltic.	3.	3. @3.	

Fruits.—Foreign Dried—The market generally is fairly active. Raisins are easy in price. We quote: Valencia raisins, 6½@8½c.; loose muscatel, \$1.85@1.90; London layers, \$2.35@2.40; Sultana, 7½@7¾c.; Ondara layers, 9½c. Almonds—Princess, paper shelled, 24c.; Sicily shelled, 23c.; Jordan, 37@38c.; Taragona, 14½@14¾c.; Ivica, 13½@14c.; Languedoc, 14½c.; French sardines, 11@11½c. for quarter boxes and 16@16½c. for half boxes. Citron, 18½@18¾c. Currants, 5¾c. Figs, 9½@14c. Turkey prunes, 3½c.; French prunes, 5½@12c. Grenoble walnuts, 16c.; French do., 6@7c.; Naples do., 14½c. Sicily filberts, 7½@7¾c.; Naples do., 7½@7¾c. Dates, 5½@6½c. for Persian in boxes, and fards, 8c. Brazil nuts, 6½@6¾c.; Chili walnuts, 8½@9c. Fresh Fruits—Pears—Beurre d'Anjou per bbl. at \$4@6; Beurre Rose, per bbl., at \$5@6; Duchesse, per bbl., at \$3.50@5.50. Apples—Gravenstein, per bbl., at \$2.50@3; varieties, at \$1.50@2 per bbl. Greenings, at \$1.75@2 per bbl. Grapes—Catavba, at 40c. per lb.; Concord, per lb., at 30c. Quinces at \$2.50 for choice. Cranberries at \$6@6.50 for Cape Cod best; \$5.50@7.75 for choice; \$4@5 for light; \$1.75@2 for choice, per crate; \$1.25@1.50 for Jersey, per crate. Domestic Dried—The market is strong and fairly active. Apples—Fancy evaporated, 9c.; choice, 8c.; Tennessee quarters, —c.; Southern sliced, prime, 2½@3c.; North Carolina fancy sun-dried, new, 5@5½c.; do. choice, 3½@4c.; do. prime, 3c. Peaches—North Carolina, peeled choice, new, 11@11½c.; do. fancy new, 12@12½c.; Georgia choice, 10c.; prime fancy, new, 12@12½c.; Delaware evaporated, peeled, 23@26c.; unpeeled, new, 12½@13c.; cherries, pitted, 9½c.; raspberries, evaporated, 14@15c.; do. sun-dried, 12½@13½c.; blackberries, prime, 7½@7¾c. Plums, 6½@7c.

Flour and Meal.—A moderate demand and steady rates are the chief features of the flour market. City milled flour is attracting the most attention, and sales for South America and West Indies absorb the product of the favorite mills, which are sold ahead. We quote: No grade, \$1.85@2; fine, \$2@2.65; supers, \$2.40@2.90; extras No. 2, \$2.90@3.35; extras No. 1, \$3.35@4.40; clear bakers', \$3.50@4; straight bakers', \$4@4.50; patents, \$4.50@4.90; city extras (European) in 140-lb. sacks, \$3@3.75; city West Indies, \$4.40@4.50; city patent, \$4.50@4.90. Southern flour is steady on moderate demands. We quote: Fine, \$2.50@2.75; supers, \$2.65@2.85; extras, \$3.25@4.50; Richmond first, \$4.75@4.87½; Richmond second, \$4.25@4.37½; patents, \$4.50@4.90. There is a fair demand for rye flour and prices are steadily held. We

quote: Fine at \$2.25@2.40 and superfine at \$3.20@3.35. The call for corn meal is only moderate and quotations are for Western, \$2.25@2.40; Western granulated, \$3.40@3.65; Brandywine, \$2.75@2.85. Bag meal is quiet, but steady. Quoted, coarse, 85@87c.; fine yellow, 95c.; white, \$1; oil meal, \$2.60@2.7, and cotton-seed meal, \$2.3.

Grain.—Wheat options have been fairly active, but somewhat irregular, although on the whole prices are better by ½c. per bushel. Closing prices were: November, 84½c.; December, 85½c.; January, 87½c.; February, 89c., and May, 93½c. "Cash" wheat was in moderate request for both milling and shipment, and the market has ruled firmer, in sympathy with options. Sales comprise: Ungraded red winter, 79@88c.; No. 3, 82@84½c.; No. 2 elevator, 84@84½c.; No. 2 afloat, 84c.; No. 2 f. o. b., 84c.; No. 1 red, 88c., and ungraded white, 82c. Corn options have been in very moderate request, but the market has ruled in favor of the seller, closing prices being November, 45c.; December, 47c.; January, 48c.; February, 48½c.; May, 50½c. "Cash" corn has been moving moderately, with market in sellers' favor. Late sales included: Ungraded mixed, at 44½@45c.; No. 2 in elevator, at 45½@45½c.; No. 2 afloat at 46c.; and No. 2 white at 47c. Oat options have only been favored with light dealings. The market has been steady and closing figures were: November, 33½c.; December, 33½c.; January, 35½c.; May, 36½c. There has been only a light demand for cash oats. Late sales were: At 38c. for No. 1 white; 36c. for No. 2 do.; 35@35½c. for No. 3 do.; 33c. for No. 1 mixed; 32½@32½c. for No. 2 do.; 32c. for No. 5 do.; 31c. for rejected; 33½c. for No. 2 Chicago; 33@34c. for mixed on track, and 35@40c. for white on track. Rye has been steady, but dull. We quote Western, 53@54c.; Canada, 54@56c., and State, 56@57c.

Leather.—Jobbers have shown a disposition to operate to some extent in hemlock sole, where they have been able to obtain shaded figures and the demand has been principally from them. There is a good export demand for acid and values are steady. Prime grade of Calcutta Buffalo are in fair request at firm prices, while inferior are only in limited demand. We quote: *Hemlock Sole*—Non-acid Buenos Ayres light, first selection, 21@21½c.; middle do., 22@23c.; heavy do., 22@22½c.; light seconds, 19@19½c.; middle do., 19½@20c.; heavy do., 19½@20c.; damaged, all weights, 17@18c.; non-acid California light, first selection, 21c.; middle do., 21@21½c.; heavy do., 21@21½c.; light seconds, 19c.; middle do., 19@19½c.; heavy do., 18½@19c.; non-acid common hides—light, first selection, 20c.; middle do., 20½@21½c.; heavy do., 20@22c.; light seconds, 18@18½c.; middle do., 18½@19c.; heavy do., 18½@19c.; damaged, all weights, 16@17c.; rejects, 12@12½c.; acid hides of all kinds—light, first selection, 20c.; middle do., 20½@23c.; heavy do., 21@25c.; light seconds, 18@18½c.; middle do., 18½@19½c.; heavy do., 18½@21c.; damaged, all weights, 15@18c. *Union Tanned*—Slaughter—Light backs, 31@32c.; middle backs, 31@32c.; middle backs, heavy, 31@31½c.; seconds, backs, 29@30c.; light crop, 28½@30c.; middle crop, 28½@30c.; bellies, 15@15½c. *Calcutta Buffalo*—Light, 18@19c.; middle, 17@18½c.; damaged, 15@17c.; poor damaged, 12@13c.

Lumber.—There has been a fair average volume of trade in the lumber market. Assortments generally admit of meeting any ordinary call, and full prices are insisted upon. Coastwise arrivals have been full of late, spruce in particular coming to hand quite freely. Lath has been plenty and some shading has been done. It is quoted at \$2.25@2.35 per M., according to quality. Quotations are: Spruce, random cargo, \$14@16 per M. feet; do. special cargo, \$16@18. White pine, South American shippers, per M. feet, \$28@29; do. West India shippers, \$16@17; do. box boards, \$14@15. Yellow pine, random cargo, \$18@19.50; do. special cargo, \$15.50@21; do. green flooring boards, \$17@18; do. dry flooring boards, \$21@22; do. siding, \$21@23; do. cargoes f. o. b. Atlantic ports, rough, \$13@15; do. cargoes f. o. b. Atlantic ports, dressed, \$12@20; do. cargoes f. o. b. Gulf ports, rough, \$12@14; do. cargoes f. o. b. Gulf ports, dressed, \$19@21.

Metals.—Copper—Ingot is firm and the market is moderately active. Sales of Lake have been made at 11½c., prompt cash, that price being still bid for spot lots and 11.60@11.65c. for January to March deliveries. Baltimore is 10½@10½c., and Arizona 10½c. nominal. Pig-Iron—The business in anthracite is just at present confined to hand-to-mouth transactions by small consumers, while large consumers' wants are met by goods going forward on old contracts. This movement with the new engagements made absorb the production, and with stocks in good order the market is firm, especially for No. IX foundry. Large consumers are looking ahead into 1887 and are placing orders at \$19 for No. IX foundry. Current prices on prompt deliveries are \$18.50@19 for No. IX foundry, and \$17@18 for No. 2 X foundry and \$16@16.50 for grey forge. Domestic Bessemer pig is firmer at \$18.50 at furnace, for good brands, and at 50c. under that a good quantity can be placed. Foreign is quoted \$19.50@20, laid down here. Scotch pig remains very firm. The arrivals are moderate, and that fact, coupled with the high cost, limits business to retail proportions. We quote: \$19.50 for Eglinton, \$19.50@20 for Dalmellington, \$20.50 for Glengarnock, \$21@21.50 for Gartsherrie, \$21@21.50 for Summerlee, and \$22.25@22.50 for Coltness. Old Rails—Buyers are holding back and sellers are indifferent. We quote, \$22@22.50 for tees, with sales at inside figure on Sound port. Scrap Iron—Wrought scrap from yard is held at \$20@20.50, and for foreign to arrive \$19.50 is asked. Car wheels are in fair demand, and are firm at \$16. Steel Rails—Eastern mills have been taking orders at \$34@35 at works, and Western mills at \$37@38, Chicago delivery. Lead—Pig lead is without change. Buyers are indifferent, and sellers are not inclined to force the market, which is now about 4@4.05c. Tin—Speculation is hesitating and consumers are taking only to cover actual wants. Sales include Straits at 22.10@22.20c. net cash, on spot, and 22.15c. for November and December delivery. The closing prices were as follows: Straits, 22.15@22½c. cash, in 5 to 10 ton lots, and 22½c. cash, 22½c. thirty days, for ordinary store parcels. English L. & F. about 23c., and Banca, 23c. nominal. Tin Plates—Business drags in a slow way. Values are barely steady. We quote spot lots as follows: I. C. charcoal, ½ cross assortment, \$4.60@4.65 for Alloway and \$5.15@5.20 for Melyn grade; for each additional X add \$1 and \$1.50 respectively. I. C. coke, \$4.25 for B. V. grade; \$4.30@4.32½ for J. B. grade. I. C. Bessemer steel, \$4.32½@4.35. Charcoal terme, \$4.15@4.17½ for Alloway grade; \$4.20@4.22½ for Dean grade, 14x20, and \$8.30 and \$8.45 respectively for do. 20x28.

Molasses.—Foreign grades have been in light demand and the market is dull and featureless. The demand for old-crop New Orleans is slow and sales are difficult. The receipts of new crop are small, but the market is easier. In the absence of demand, the market for sugar-house is dull and nominal. Sellers ask 10c. for ordinary and 11½c. for extra heavy. Low and medium grades of straight sugar syrups are scarce, while there is a fair demand for goods on export account. Higher grades are dull and easy. We quote 16@25c. as covering the extremes of the market. We quote: Cuba, boiling, nominal; Porto Rico, 20@34c.; Barbadoes, 20@22c.; New Orleans, common to fair, 16@20c.; do. fair to good, 21@25c.; do. prime to choice, 26@33c.

Naval Stores.—The spirits of turpentine market has ruled quiet and prices are a trifle off, with sales made at 37½@38c. Rosins are dull and lower, except E, which is scarce and wanted. We quote: Common, 95c.; good strained, \$1.07½; E, \$1.30; F, \$1.42½; G, \$1.50; H, \$1.55; I, \$1.65; K, \$2.05; M, \$2.62½; N, \$2.95; window glass, \$3.15, and W W, \$3.65. Tar is quiet and quoted at \$1.00@2.25 as to quality. Pitch is quoted at \$1.35@1.45.

Paper.—There has been a fair demand in all grades during the last month, and mills making fine grades are sold well ahead. Some difficulty has been experienced in deliveries owing to short water, but this has been remedied owing to recent rains. Prices are unchanged. Writings have been moving moderately at steady rates. Book and news have been in good demand, particularly the latter. Manillas are about holding their own, but at a meeting of the manilla division of the American Paper Manufacturers' Association to be held in this city November 10 an effort will be made to better the condition of this branch of the trade. Strawboards are selling at full combination rates. There has been an improved demand for straw wrapping, but rates are unchanged, except for 15x30, 10 lbs., which is firm at 25@26c. per ream. We quote: Fine flat capes, 15@15½c.; superfine, 16@18c.; record and ledger, 18@22c.; supersized and calendar book, 7½@10½c.; do. do., extra machine finish, 7@7½c.; do. do., low grade, 6½@7½c.; news, No. 1, 5@5½c.; do., rag and wood, 4½@5½c.; do., straw, 5½@5½c.; manillas, No. 1, light weight, 7½@8½c.; do., heavy weight, 6½@7c.; No. 2 manillas, 5@5c.; No. 3 do., 2½@3c.; straw wrapping, heavy weight, 1½@2c.; do. do., light weight, 2@2½c.

Petroleum.—The certificate has been quiet, but toward the close was stronger. Refined oil stands at 6½c. for 70° Abel test, and at that the market is firm, although quiet. Case oil has a fair demand and is firm at 8½c. for plain brands. Home trade lots of barreled oil are quoted 7½@7½c. for 110° standard, while 7½@8c. for 120° test do.; 8½@8½c. for 130° test do.; 8½@9c. for State test do., and 9½@9½c. for 150° test water white. Crude in barrels is quoted at 6½c. for Bradford and 6½c. for Parker.

EXPORTS OF REFINED, CRUDE AND NAPHTHA, FROM ALL PORTS, JANUARY 1 TO OCTOBER 31.

	1886.	1885.
From Boston.....gals.	4,736,632	7,867,455
Philadelphia.....	126,104,472	127,901,295
Baltimore.....	13,384,229	9,504,819
Perth Amboy.....	4,850,046	.. ..
Totals.....gals.	149,075,379	144,675,569
From New York.....	123,913,866	35,312,457
Total exports from United States.....	472,989,245	459,988,026

Provisions.—Pork—The market has ruled steady but quiet. Quotations are as follows: \$9.75@10 for old and \$10.25@10.75 for new mess; \$13.50@14 for family mess; \$14.25@15.25 for clear back straight goods, the latter for fancy and \$12@10.50 for extra prime. Dressed hogs are higher and wanted. Quotations are: Bacon, 5½c.; 180 lbs. average, 5½c.; 160 lbs. average, 5½c.; 120 lbs. average, 6c., and pigs, 6½@6½c. Cut meats have had light call but the market is steady. Sales are: Pickled bellies, 10 lbs. average, at 7c.; 12 lbs. average, at 7c.; 11 to 12 lbs. average, at 7c.; pickled shoulders, at 5½@5½c. Pickled bellies, 12 lbs. average, quoted at 7c.; do., 10 lbs. average, at 7c. City pickled shoulders quoted at 5½@5½c.; smoked shoulders, at 6½c.; pickled hams, at 9½@10c.; smoked hams, at 10½@11c. Middles are firm for all cuts, but trading is without any special life. In Chicago long and short clear, half and half for December and January deliveries, are quoted 5.40c., and short clear for December and January at 5.50c. Beef is slow and nominal. City Extra India mess is quoted \$11@14 in tierces; extra mess, in barrels, at \$7.25@8; packet, at \$8 for barrels; plate, at \$7.25@8. Beef hams are in moderate movement and are steady at \$17 in the West and \$18.50 here. In the lard market there has been a fair export demand and the market has ruled firm. Closing sales of spot were at 6.10@6.12½. City steam is firm at 6c. and is fairly active. Refined is selling at 6.40c. for Continent and 6.80c. for South American.

Starch.—Western corn is firm and unchanged at 2½c. for bbls. and 2½c. for bxs.; potato has ruled quiet and with large receipts of new crop the market has ruled easier, quotations being 3½@3½c.

Stearine.—The market is quiet and steady. Prime City is quoted at 7c., and Oleomargarine at 6½@6½c., with sales at the inside figure.

Sugar.—Raw—The raw sugar market has shown very little change. There is a moderate demand. Refiners are buying only to cover current wants, as they are endeavoring to restrict their output to the actual requirements of consumption. Sales have been made on the basis of 4 9-16c. for 89 test Muscovadoes and 5 3-16c. for 96 test centrifugals, the latter being chiefly in request. Late sales include: Bahia, basis 83 test, 4 1-16c.; do., 83 test, 4 1-16c.; 44 hds., Cuba centrifugal, basis 96 test, 5 3-16c.; do., 5 3-16c.; Demerara Muscovado, 86 test, 4 7-16c.; Demerara centrifugal, basis 96 test, 5 3-16c.; Cuba centrifugal, 96 test, 5 3-16c. Refined is in moderate demand only and the market is about steady, there being a slight shading on hards. We quote for export: Cut loaf, \$3.52@3.59; Cubes, \$3.21@3.27; crushed, \$3.52@3.59; powdered, \$3.21@3.33; granulated, \$2.96@3.02.

Tea.—There is an absence of important change in the market. Trading is moderate, but outside of Japan's market is firm. The latest auction prices are: Moyune green, including hyson, 7@19c.; young hyson, 10½@40c.; imperial, 14½@27½c., and gunpowder, 14½@47½c. Pingsuey greens, including young hyson, 9½c.;

imperial, 18@21c., and gunpowder, 11@27c. Japan, including pan-fired, 11½@26c.; do., basket-fired, 19½@20½c.; sun-dried, 12½@14c., and siftings, 5@7½c.; congou, 14@28c. Oolong—Formosa, 18@32½c.; Foochow, 16@18½c.; Amoy, 15½c. India and orange Pekoe, 20@24½c.

Tobacco.—Kentucky has ruled quiet, and toward the close business was much duller than during the first three weeks of the month. We quote: New common lugs, 3¼@4c.; good, 4¼@5c.; low leaf, 5¼@6½c.; good, 9@10c., and fine, 11@12c. Previous prices for Virginia have been well maintained. We quote: 5@7c. for common to good lugs, 8@10c. for common to medium leaf, 10@11c. for medium to good do. and 11½@18c. for good to fine do.; common bright wrappers, 15@17½c.; good do., 22½@30c.; fine do., 40@50c.; common smokers, 8@12½c.; good do., 15@20c.; fine do., 22½@27½c. Seed leaf continues in moderate demand and the market is steady. We note sales, 1882-3 Pa., at 11@13c.; 1885 Pa., Havana, at 9@17c.; 1885 Ohio, 5¼@9c., and sundries, 7@28c. Foreign rules steady and business is rather light, with reported sales of Havana at 60c.@\$1.10 and Sumatra at \$1.20@1.60.

STOCK OF SPANISH TOBACCO.

	Havana.	Cuba.	Sagua.	Cienfuegos.	Yara.
Stock October 1, 1886.....bales.	47,913	152	....	....	301
Received since.....	10,144	30	....	....	57
Total.....bales.	53,057	182	....	....	358
Delivered since.....	12,115	....	....	....	100
Stock November 1, 1886.....bales.	40,942	182	....	....	258

Wool.—The market is quiet and unchanged. Holders, as a rule, do not show any disposition to grant concessions, while buyers look for lower figures and express confidence in getting them at an early day. Late sales comprise: scoured super 54c.; scoured spring Texas, fine, 61c.; Mexican, 16½c.; Texas, 29c.; XX Ohio, 38c.; medium unwashed Indiana, 32c.; Oregon, 24c.; domestic noils, territory in grease, scoured, East India, spring Texas, fine spring Texas, spring California, scoured Texas, low super pulled and extra, do. on private terms.

General Notes.

It is proposed to spend £8,000 for a fence ninety miles long to prevent the inroad of rabbits from Victoria to South Australia.

A RUSSIAN engineer claims to have discovered a process of reducing petroleum to the form of crystals, which may be easily and safely transported to any distance and then reconverted into liquid form.

THE Cape Government has decided to admit mining, railroad and other machinery for all parts of South Africa free of duty through all ports of the colony, and also undertakes to forward the same at special rates by railroad to Kimberley, which is the nearest accessible point to all important places in the Transvaal and the interior.

AMONG the important patents recently granted by the Patent Office is one for improvements in rolling mills. The improvements have for their object the rolling of small wire rods, such as are used for fence and telegraph purposes. These are at present obtained by what is known as the wire-drawing process, it being impossible to roll the smaller sizes of wire-rod with the mills now in use. The new method, it is claimed, will combine in its operation both the rolling and drawing processes.

A NOVEL and ingenious device for ejecting water from the cylinder of a locomotive has recently been invented by William McKenzie, general foreman of the New York, Pennsylvania and Ohio Railroad machine shop in Meadville. The steam ports on either side of the locomotive are connected with a small pipe, to which is attached an automatic valve directly back of the saddle. When the locomotive is under steam-pressure this valve remains closed, and opens the moment the pressure is shut off, thus allowing every drop of water that has accumulated in the ports to escape.

CARBON resulting from the imperfect combustion of natural gas, says the *American Manufacturer*, has been heretofore used to a considerable extent for lamp-black and ivory-black, printers' inks and paints. It is now proposed to use it to make carbons for electric lights. The earthy salts in those made from woody fibre interfere with the steadiness of the light, and diminish the life of the carbon. A perfectly pure article can be produced from natural gas, and a company has been formed to engage in the business. The durability of these carbons is as 13 to 8, and the light produced is of increased brilliancy.

It is said that the manufacture of spurious diamonds of the kind known as "doublets," is exceedingly ancient. The method of manufacturing them practised by the celebrated Zocolino was to procure a thin flake of an inferior stone, with as little color as possible. As a bottom for the artificial gem, he took a bit of crystal and covered it with a transparent glue, in which was mixed the coloring material necessary to imitate the finest specimen. Upon this basis he super-

imposed the flake of cheap diamond, and so artfully concealed the joining of the two that even the cleverest lapidaries were deceived. The Singhalese are experts in such frauds, which in many cases, especially when both parts are really diamonds, are very difficult to detect. Frequently a cluster of diamonds will contain several doublets, and in necklaces are often found 20 per cent. of such questionable stones. Doublets are sometimes so artistically made that only the test of specific gravity will show that they are false. To buy diamonds, therefore, of irresponsible persons, particularly when they are offered at a temptingly low price, would be the height of folly, since the chances are that spurious stones will be palmed off on the unwary.

THE rapid increase in the production of tobacco in Virginia is shown by the fact that, during the trade year ended September 30, Lynchburg handled 50,000,000 pounds and Danville 40,000,000 pounds, or, in other words, 90,000,000 pounds were sold in these two cities alone, whereas in 1880 the entire tobacco production of the State was only 79,900,000 pounds. The growth of this industry in five years in North Carolina has probably been equally as large as in Virginia, and one of the most satisfactory features of the business in both States has been that, instead of this tobacco being shipped away in the leaf, it has been manufactured at home. Tobacco factories by the dozen have been built throughout the tobacco section of these two States, and thousands of hands have thus found steady employment. Lynchburg, Richmond, Petersburg, Danville, Martinsville, Abingdon, Durham, Reidsville and many other places have grown rapidly in population and wealth through the manufacture of tobacco.

NITRO-GLYCERINE and dynamite do not, when exploded, exert such a force as is popularly believed. To speak precisely, the power developed by the explosion of a ton of dynamite is equal to 45,675 foot-tons. One ton of nitro-glycerine similarly exploded will exert a power of 64,452 foot-tons; and one ton of blasting gelatine, similarly exploded, 71,050 foot-tons. These figures, although large, are not enormous, and need not excite terror. Seventy-one thousand tons of ordinary building stone, if arranged in the form of a cube, would measure only 90 feet on the side, and, if it were possible to concentrate the whole force of a ton of blasting gelatine at the moment of explosion on such a mass, the only effect would be to lift it to the height of a foot. The foregoing figures are derived from experiments made at Ardeer with an instrument that gives accurate results in measuring the force of explosives.

THE foundations of a Roman villa of fine proportions have just been brought to light at Folly Hill, Maidenhead, Berks. During the excavations (which are still in progress) a Roman knife, a bronze pin, several coins, some fragments of Samian ware and a hypocaust in capital preservation were discovered. This is another instance of the general use of pottery by the Romans. It leaves little doubt in the mind of the antiquarian but that pottery was more general in every household than it is at present, for it took the place of iron, tin and metals generally in household requisites and frequently that of the precious metals likewise. Pottery may well be classed among the most ancient of manufactures.

PROFESSOR FISCHER, of Munich, after an extended research on the nature and properties of quinine, has discovered that a substance may be extracted from coal tar that exercises on the human organism an action identical with that of quinine. The substance appears as a white crystalline powder. Administered in cases of fever, it has the effect of rapidly lowering the temperature, and its efficacy in this respect is stated to be so remarkable as to permit the use of ice to be dispensed with; in the stomach the wonderful powder assimilates with even greater facility than does quinine.

A LINE of steamships has been established between New York and the East, via the Suez Canal. The Parthia is the first vessel of the line and has already been dispatched, carrying cargo for Hodeida, Aden, Penang, Singapore, Hong Kong and Shanghai. As the bulk of the cargo is for China ports, this seems rather an expensive and roundabout method of transportation. With suitable transcontinental freight rates, such a line would be more likely to pay were the vessels dispatched from the Pacific Northwest.

A PROJECT is on foot, backed up by a syndicate of English capitalists, to so improve the canal facilities between the interior of Belgium and the Scheldt as to greatly facilitate the shipment of the smokeless

Belgium coal to London. The proposed plan includes the erection at Brussels of enormous coaling docks and wharves, with every facility for cheap handling. The advantage to the atmosphere of the city of London by the use of this fuel will be enormous, and before long it may really become possible for the average "Cockney" to know what sunshine actually is.

THE proposed tunnel under the Sound will, a leading Swedish journal states, serve as a demonstration of the possibility of constructing the Channel tunnel. It is further stated that great saving will be effected by having one line of rails only, and by making the tunnel of cast-iron.

A NEW method of manufacturing car-wheels has been tested at Wilkesbarre, Pa., with satisfactory results. By the old method three men could make only eighteen wheels per day of twelve hours. By the new process the same number of men can turn out a perfect wheel every minute, or 720 per day. One of the principal features of the new method is the use of a steel core instead of one of sand in casting the wheel. The core is removed by knocking out a centre key, leaving the hole perfectly true and ready to be put upon the axle at once without dressing or boring.

TWO of the largest castings in the world are to be seen at Nara and Kamakura, Japan, the one at the latter place being 47 feet high and the other, at Nara, 53½ feet from the base to the crown of its head. The statue at Nara is supposed to have been erected in the eighth century, but it was destroyed and recast about 700 years since. In endeavoring to recast it several mishaps occurred, and when at last success came, some few thousand tons of charcoal had been used. The casting, which is an alloy of iron, gold, tin and copper, is estimated to weigh 450 tons.

THE Norwegian Meteorological Institution of Christiania has adopted an ingenious plan for disseminating its weather reports among the farmers, fishermen, &c. Thus, on the brake of every train departing from the capital to any part of the country after three P. M., a signal is exhibited indicating the weather to be expected for the ensuing twenty-four hours. These signals are very simple, consisting of red and white triangles, squares, and balls, each of which, or several combined, have their meaning; a white ball, for instance, "fine weather," &c. These signals will also be displayed from the masts of several coasting steamers.

THE use of natural gas fuel has led to the manufacture of mirrors in Pittsburg. Up to this time all mirrors manufactured in the United States have been from imported glass. The quality of the glass, to retain the silvering and give a perfect reproduction of the object, must be of the best. This quality Pittsburg has never been able to produce until natural gas came into use. Now, by its aid, it is said, the fineness of the glass produced rivals that of the imported article. The entire absence of impurity, the perfect fusing of the ingredients, the rapidity of the melting, and the pure, intense flame for reheating or working are the principal advantages.

A PROPOSED method for making window-glass by rolling instead of blowing has been described recently in the Pittsburg papers, and commented upon at some length. Though the description of the process is not very clear, it would seem as if the intention of the inventor is to run the molten glass as it comes from the pot between two hollow reversible rolls heated with natural gas by pipes full of perforations placed on the inside of the rolls. As the rolled glass passes through the rolls it is received on the opposite side on an iron plate, also heated, from which it is passed into the annealing furnace. It is claimed that by this process a glass of uniform thickness and polish ready for the sash can be made.

B. PAKOFF gives in the *Russian Mining Journal* an account of an extensive series of experiments on the influence of cold on the strength of iron and steel in various forms and under various kinds of strains, but circumstances obliged him to abandon his intentions after a very few tests had been made. He thinks, however, that the results he was able to obtain are worth being made known, because they seem to point to conclusions totally opposed to those generally received. All the specimens tested were taken from soft steel and iron plates, three samples being cut from each plate. One sample of each group was tested at the ordinary and two at the low temperature. It was found that both the ultimate strength and percentage of elongation increased

very sensibly with the decrease of temperature; the author remarks that such a result was to be expected, because the contraction caused by cooling has the effect of bringing the particles of matter closer together, and consequently of intensifying the force of cohesion, but he also observes that a law which may be found general for strains gradually imposed may not apply at all when they assume the nature of shock or of impact.

Catalogues and Price-Lists.

TO READERS.

THE Catalogues and Price-Lists herewith noticed are valuable for reference. In sending for such lists our readers should mention the date of issue and the page number of THE MAIL in which they are noted.

SHEPARD HARDWARE COMPANY, Buffalo, N. Y., U. S. A.—Handsomely illustrated price-list and catalogue of hardware specialties.

L. & J. J. WHITE, Buffalo, N. Y., U. S. A.—Illustrated catalogue of butchers' tools, ice-tools, &c., with price-list.

WINTON MANUFACTURING COMPANY, Binghamton, N. Y., U. S. A.—Illustrated catalogue of boys' sleds, wagons, velocipedes, baby carriages, &c.

HOWARD IRON WORKS, Buffalo, N. Y., U. S. A.—Illustrated catalogue of store, warehouse and factory lifts or elevators, for steam, hydraulic or hand power.

TOWER & LAMONT, Rochester, N. Y., U. S. A.—Illustrated catalogue of razor-strops.

BINGHAMTON SCALE WORKS, Binghamton, N. Y., U. S. A.—Descriptive illustrated catalogue of Osgood's patent combination scales.

JAMES CARTER, Lockport, N. Y., U. S. A.—Illustrated descriptive catalogue of stoneware water filters and coolers.

WATEROUS ENGINE WORKS COMPANY, Brantford, Canada.—Illustrated price-list of portable grist and corn mills, steam-engines, agricultural engines, &c.

B. GILL & SON, Trenton, N. J., U. S. A.—Illustrated catalogue of threshing-machines and other agricultural machinery.

FARMER ROLLER-MILL COMPANY, Grand Rapids, Mich., U. S. A.—Illustrated catalogue and price-list of the Fox patent roller-mill for reducing wheat to flour.

THE EGAN COMPANY, 161 to 181 West Front street, Cincinnati, Ohio, U. S. A.—Illustrated and descriptive catalogue of wood-working machinery.

Business Notices.

THE Kilbourne & Jacobs Manufacturing Company, Columbus, Ohio, has been enlarging its works to meet the urgent demand for its products, which consist of wheelbarrows, road-scrappers, &c. This house invites an examination of its goods by foreign buyers.

THE F. F. Adams Company, Erie, Pa., manufactures a variety of household specialties, as wringers, washing-machines, clothes-horses, step-ladders, iron tables and other articles. These products are well-known and widely used in the United States and will be appreciated in any country.

THE Sidney Steel Scraper Company, Sidney, Ohio, has been running its works night and day to keep up with orders. This company manufactures scrapers of different kinds for grading purposes and the excellence of its products is well attested. Among these may be noted Haslup's patent wheel scraper, all-steel drag scraper, all-steel bobsleds, &c.

THE contest between sand-papery machines at the Robert Mitchell Furniture Company's factory at Cincinnati assumed very large proportions and was awaited as a standard test by many manufacturers. The machines entered were 30-inch double-drum sand-papery machines, and both were handled by experts. The Egan Company, of Cincinnati, carried off the palm, and its managers feel proud of the distinction they have gained and the great progress they have made in building improved wood-working machinery, especially sand-papery machines.

THE Rothweiler Manufacturing Company, Newport, Ky., manufactures tinners' and sheet-metal workers' tools including a full line of squaring shears, bench and hand shears, patent pipe-folders, patent automatic hollow punches, patent rim machines, raising, riveting, setting and planishing hammers, hollow punches, scratch awls, rivet sets, grooving tools, cutting nippers, roofing tools, tinners' stakes, bench plates, brass-mounted grooving machines, stove and tin pipe formers, sheet-iron holders, gutter-beading machines and rods. Send for illustrated circular and prices.

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Engineering and Machinery.

Acme Automatic Safety Engine for Boats.

THIS engine, which is shown by the accompanying cut, has two upright single-acting cylinders, the cranks being 180° to each other. The long, hollow pistons, $1\frac{1}{2}$ times the stroke in length, form their own guides, the wrist-pin being placed just below the centre and the steam rings above it.

The valve, which is of the balanced rocking type, is placed directly over the cylinders, the valve-case forming the cylinder-head. This arrangement gives opportunity for long ports, which give quick admission and release and reduce "clearance" to the minimum. The exhaust steam (which escapes through the centre of the valve) is led into a heater case which contains a coil of pipe, through which the feed water is forced by the pump on its way to the boiler, and is heated to nearly or above the boiling point according to pressure carried in the boiler.

The engine is rigidly attached to its base, and has a pitch toward the stern of the boat of $\frac{1}{4}$ in. to the foot when the base is level, and no "universal joints" are needed to give the shaft the necessary pitch to submerge the wheel and yet have rigid shaft connections.

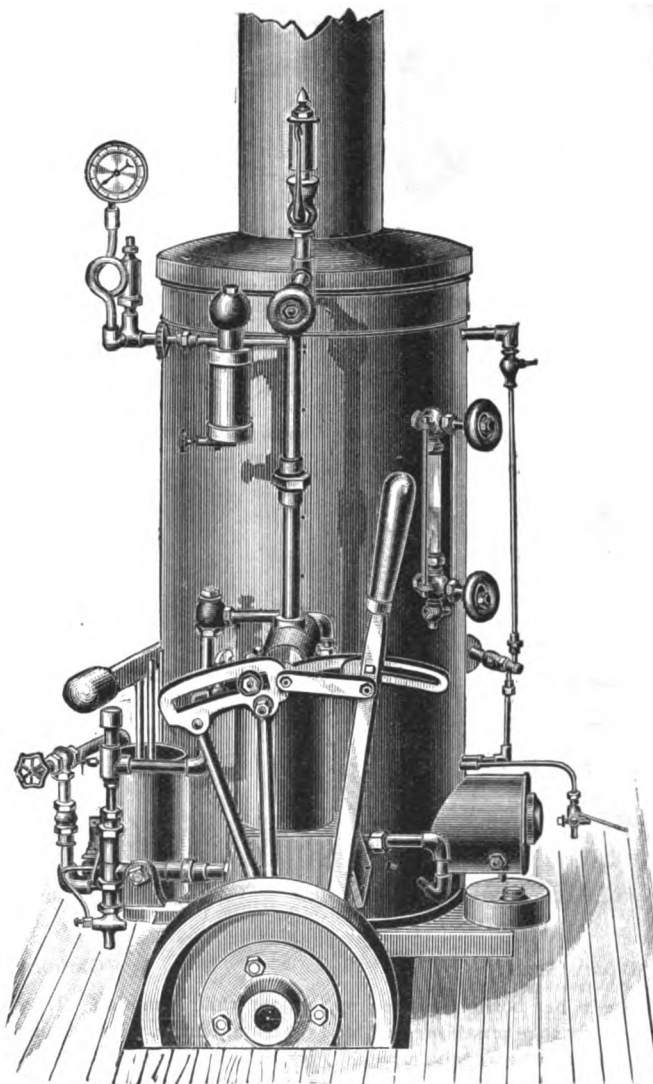
The eccentrics which actuate the valve motion are keyed fast to the shaft and cannot slip. The shaft coupling is let into the face of the hand-wheel sufficiently to make a perfect alignment of the shaft necessary to get them together.

The link is made strong and durable, and is so arranged that there is little lost motion from the block sliding in the link.

Lubrication is accomplished by carrying in the crank case a mixture of oil and water, into which the cranks dip at every revolution, and are not only flooded themselves, but throw the oil to every part inside of the cylinder and crank case. The strain on the connecting-rod is one of compression only, and as the labor is all performed in one direction there is no rattle or jar from lost motion. The cranks, shaft and wrist-pins are of steel of extra large diameter and length of bearing. The engine combines lightness, strength and compactness, with silence and freedom from jar at high speeds, and can be reversed instantly under full steam without injury. The boiler shown in the cut

is arranged to burn kerosene oil vaporized by a steam jet, and is said to be a rapid and economical steam generator capable of carrying high pressure without danger "to life or limb." The engine is made in sizes of 1 to 4 horse-power (nominal), and is also furnished separate from the boiler if desired.

It is claimed that the small floor space occupied, low centre of gravity, simplicity of construction, ease of manipulation, combined with durability, make this a desirable engine for the uses above specified.



SAFETY ENGINE FOR BOATS.

Double Spindle Variety Molder.

A DOUBLE spindle variety molder which has been lately brought out is a strong, durable machine for producing all kinds of irregular moldings of the finest finish in piano, organ and cabinet factories, car and agricultural implement shops and other similar establishments. It is designed to perform the heaviest work in a rapid and economical manner, without vibration or tremor. The frame is very heavy, cast in one piece cored out, and has the spindle-box slide-bearings cast to the side forming a part of the frame. The base is very wide, preventing any vibration and securing solidity. The hollow column is fitted with a door and shelves, forming a case for the reception of tools, wrenches, heads, cutters, &c. The spindle-boxes and slides are one casting. They are planed on centres and held in the frame by large gibs and sliding surfaces. They are adjustable vertically by hand-wheels in front of the frame, in connection with a new adjusting device that requires no lock to hold it at the proper height. The lower box is fitted with a patent self-oiling and adjusting step, which is made to stand under the highest kind of speed. The spindles are thirty inches from centre to centre, have independent screw tops, enabling the operator to have various sizes for large or small work or to clear the table of either spindle for

any special work. The iron table is five feet by four feet, planed and fitted with concentric rings around the spindles to suit various sizes and kinds of heads and cutters. A heavy wooden table, made of narrow, glued-up strips of hardwood, is furnished instead of iron, if preferred. The manufacturers say that this machine has been run up to 6,000 revolutions without the least perceptible jar, and cutter heads as large as eight inches in diameter are being used on it for heavy work, with success.

Grinding Mills.

COMPARATIVELY little is known by the public at large about grinding mills, and yet the persons who do not eat the product of grinding mills daily, in the shape of wheat flour, corn meal, rye and buckwheat flours are few in number. Before making any remarks concerning the modern appliances in this line, it may interest many to refer to the ancient methods of reducing grain to flour, but the writer is balked in this endeavor, because the early instances on record are of great antiquity, and fragmentary and disconnected.

Ching Nong, of China, who held despotic sway about 3,884 years ago, taught the Chinese the art of grinding and making bread, but tradition does not say who taught him.

Grinding stones were unearthed from the lake dwellings of Switzerland, which probably existed thirty-seven centuries ago.

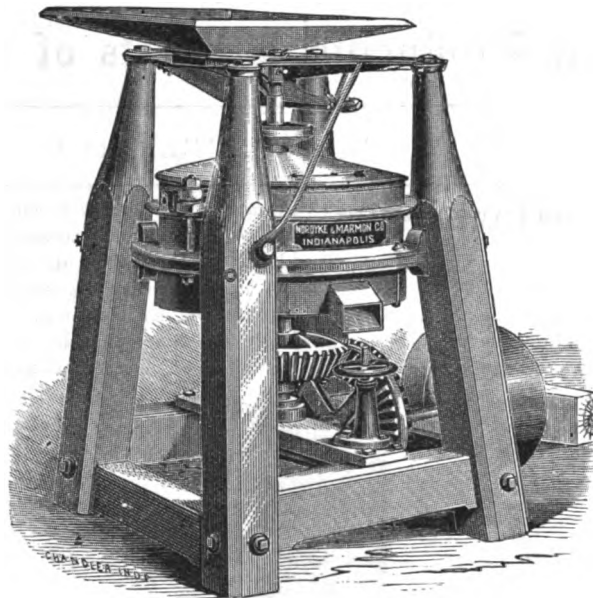
The Bible refers to this same subject in many places. About the first instance named is the sixth verse of the eighteenth chapter of Genesis. Abraham hastened into the tent where Sarah sat and commanded her to "Make ready quickly three measures of fine meal, knead it and make cakes upon the hearth," as he desired to do the handsome thing in entertaining his newly-arrived visitors. Sarah, as well as other womenkind in those days, was miller and general drudge. Her grinding outfit consisted of a flat, inclined stone, upon which the grain was laid, and it was then pounded with a cone-shaped stone, not unlike the manner which the small boy cracks hickory nuts during these days. The meal thus made was mixed with water, bran and all, and baked, forming something like our more modern "Graham gems," or, as we called them in our boyhood days, "sinkers." If Sarah was anything

man, residing in India, recently stated that the natives there will not touch flour or meal made upon a power-driven mill, as it is said to bring ruin and disaster, preferring rather to grind it by hand like Sarah did.

Hand mills are now extensively used in some parts of Mexico, South America and other foreign countries. As illustrating the perfection which modern grinding mills have attained, the reader's attention is called to those made by Nordyke & Marmon Company, of Indianapolis, Ind., U.S.A., which manufactures over thirty different sizes and styles, and has the largest factory in the world devoted to this class of trade. Several of the sizes made by this company are illustrated.

Circulars and pamphlets describing their construction and uses will be cheerfully sent upon application to the firm by letter. Many a young man, who has not yet blocked out his future, can, by expending a few hundred dollars in machinery of this kind, set himself up in business cheaper than in any other way, and, with proper business ability, can soon build up an immense trade, not unlike that of the millionaire millers of the present day, many of whom started in on a humble scale.

These mills are now used in Mexico, South America, Russia, Denmark, Australia, Sicilia, India and

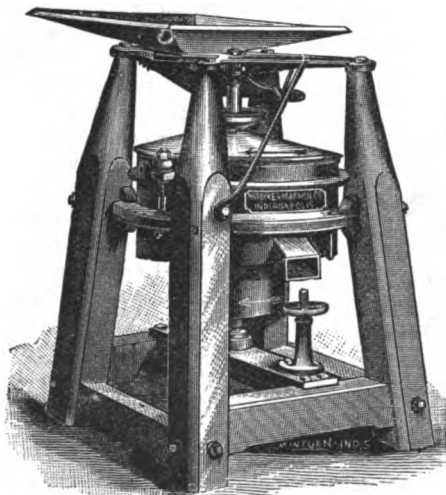


GRINDING MILL.

other foreign countries, where they are giving the highest satisfaction.

Attachment for Steam-Engine Governors.

THIS attachment for steam-engine governors, consisting of a lever and weight mechanism, acts directly or indirectly upon the balls, and by which they are practically increased or decreased in

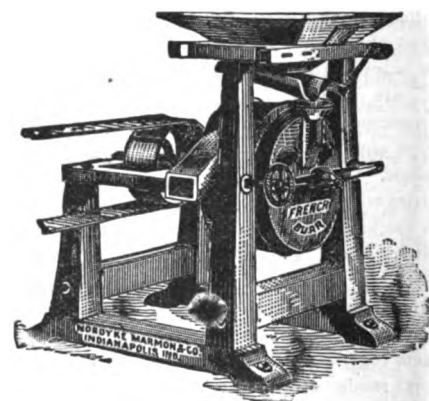


GRINDING MILL—MEDIUM SIZE.

like her modern sister, she would rather be in her boudoir, putting up her front hair in bandolined "montagues," to make herself presentable before the company, instead of mauling wheat and corn with a rock.

About 140 B. C., when the Romans had conquered Macedon, large numbers of Greek millers flocked to Rome, bringing their grinding implements with them, which they called "pistores," and obtained a monopoly of grinding and baking. When the Romans invaded England they brought with them the art of grinding and baking, but to say the most it was not much of an art, so simple and crude were the devices used.

England improved the art a great deal by using, in time, revolving stones driven by wind or water, and after this country became settled grinding mills were introduced in this country. An English gentle-



GRINDING MILL—SMALL SIZE.

weight while in motion. Heretofore, in operating ball governors as commonly made, the centrifugal force is relied upon wholly to control the time of the cut-off, and is more or less unreliable where there are great variations in the duty or load on the engine, not being sensitive to slight indifferences, requiring considerable time in which to adjust themselves, from which defects it follows that the engine will not remain at a uniform speed if its load is materially and quickly varied. This is the result with all ball governors or those acting by centrifugal force.

This new invention, when applied to any kind of governor, will permit great variations of load to affect the speed of the engine in only a very slight degree. It is well known that, with any governor, if an engine is running with a given load and at any time more is added

the engine must necessarily slow down in order to cause the governor weights to close and let on more steam to accomplish the extra work. The amount of variation in the speed of the engine, to cause different styles of governors to act varies considerably, and then steam-power is used for many purposes, such as for driving machinery for the textile industries, flour mills, electric lighting, &c. This feature becomes quite an objection. This new governor attachment is particularly intended to increase the sensitiveness of all classes of governors, and thus the number of revolutions per minute, lost by the engine when the load is increased is reduced to the least possible limit, and gives the steam-engine a regularity of speed not surpassed by any other form of motor. One of the most useful applications of this attachment is to the governors of engines used to drive the dynamos of an electric light plant. To give a perfect regularity of light, the engine should run as perfectly regular as possible, and, with the very best governors heretofore used, it is well known that a very appreciable variation in the intensity of the light is always the consequence of turning on or off a number of lights in a circuit at the same time. By applying this new attachment, which can be done at a small cost, no appreciable difference will be noticed in the intensity of the lights, whether all or a part of a circuit of lamps are in action. It has been placed upon a large number of engines, and its perfection of action has given rise to expressions of the greatest satisfaction in every instance.

Harvester Sickle-Grinding Machine.

IT is of the greatest importance that the sickle sections of harvesters should be kept in good cutting order, as in this condition the reaping is necessarily very much easier and cleaner. Also the guards and sickle-bars are often strained by a dull sickle dragging the stalks in so as to pinch and stick, but if the sections are kept sharp this will not occur. Since the sickle sections require frequent sharpening, it is very desirable to have a portable light device that can be taken to the harvest field and used without unnecessary delay. A machine of this kind has been brought out, and by it the problem of convenient, rapid and correct grinding is said to be fully solved.

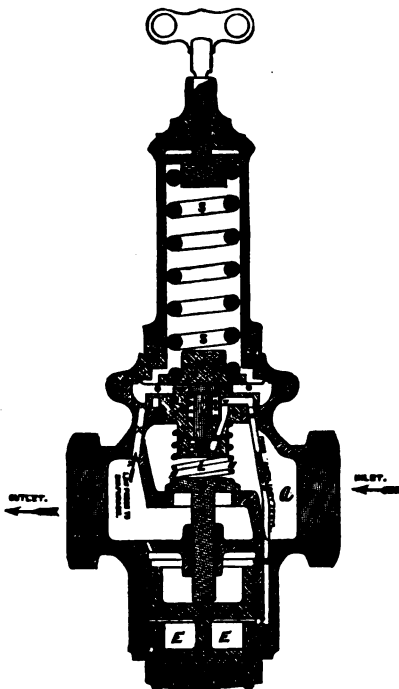
There is a base piece, and upon its rear end is rigidly fixed a vertical standard, the top being formed with a flat plane surface, to which is rigidly bolted a slotted guide bar that projects forwardly a few inches. Upon this guide bar is gibbed a cross-head, to which is pivotally attached a swing yoke, having an adjustable motion to and fro in relation to the sickle bar. A slotted stay bar holds this yoke to any position to which it may be set, and by this means a convenient vertical adjustment can readily be had. The grinder consists of a double truncated formation, which conforms to the natural bevel of the adjacent sections, and which will grind two of the adjacent edges at once.

The fulcrum point of the swing yoke is formed by the axis stem of the large cog wheel that drives the grinder, so that the tangential motion of the swing yoke will not disturb the relations of the cog wheels. From the cross-head block there projects a handle, by means of which the grinder is drawn to its work, back and forth, this being the special arrangement of the sliding cross-head along the slotted guide. The sickle bar rests upon a support so formed as to leave the grinding space entirely clear, while projections beneath the two teeth are provided with set-screws that bear upwardly, and by this means give any desired inclination to the teeth. The bar is securely held down by a forked clip that is held in place by a thumb-screw. This clip is slotted, so as to be adjustable, back and forth, to adapt it to sickle bars of different widths. By the use of a filling strip beneath it, the sickle bar is free to be shifted laterally without the necessity of loosening the thumb-nut each time.

A NEW ore separator is constructed to allow a graduated supply of water to the pan in such a way that the valuable mineral will be separated or graded into different sizes.

The Mason Reducing Valve.

THE Mason reducing valve, of which the accompanying cut presents a sectional view, is designed to reduce and maintain an even steam or water pressure regardless of the initial pressure. The principle is that of an auxiliary valve which admits the initial pressure to operate a differential piston, which is the main valve. The Mason valve differs from other contrivances for this purpose, in that the piston is steam actuated and the motion is positive. By referring to the cut it will be seen that the high pressure enters the valve at the side marked "inlet," and passing through the auxiliary valve K, which is held open by the tension of the spring S, passes down the port marked "from auxiliary to cylinder," underneath the differential piston D. By raising this piston D the valve C is opened against the initial pressure, and steam is admitted to the low-pressure side of the valve, whence it goes up the passage X underneath the diaphragm OO, upon which the spring S bears. When the low pressure has risen to the required point, which is determined by the tension given by the key to the spring S, the diaphragm is forced upward, the valve closes, and the valve C is forced on to its seat by the initial pressure, there being then no pressure under the piston D to hold it up. This action is repeated as often as the pressure on the outlet side drops below the required amount. The piston is fitted in the dashpot EE to prevent chattering or pounding when either the high or low pressure suddenly changes.



REDUCING VALVE.

"Panacea" Surfacers.

THE "Panacea" surfacer is the name of a new pony wood planer which is claimed to be the latest and best of the many similar machines put upon the market throughout the country, substantial and strong at every point, and of the very best material and workmanship throughout. In this planer the table or bed is cast in one piece and so jobbed to the frame that it can be always kept firm and solid without trouble. It has two top feed rolls geared together, and two under anti-friction rolls in the table, all easily adjusted and kept in proper position. The cutter cylinder carries two cutters, and is made from a solid cast-steel forging and finished in the most approved form for doing the finest surface planing on any and all kinds of lumber from 0 to 6

inches in thickness and 24 inches wide, with a scale and indicator convenient to the eye of operator when changing thickness. It has on each side, close to the cylinder, a pressure bar both adjustable and self-adjusting for variation of thickness of stuff being worked long or short. Every machine is put under belt, adjusted and tested with work until it proves satisfactory in every respect, and is ready for business as soon as properly set up, belted and power applied by the purchaser.

Combined Punch and Shear.

A COMBINED punch and shear lately put on the market is specially adapted to the wants of wagon and carriage makers, manufacturers of agricultural machinery or of anyone cutting or punching muck iron. It weighs about 1,500 pounds, is back geared 10 to 1, and is sufficiently strong to stop instantly and hold the balance-wheel when at full speed. The opening in the bed is 2x4 inches; depth of jaw, 5 inches. It will cut a flat bar 2½x½ inches and punch a ¾-inch hole in ¾-inch iron, or will cut ¾-inch round. The stroke of the slide is ¾ inch. The machine has two sets of knives, one for flat and one for round iron. These sets of knives are entirely independent of each other and of the punch. The knives can work at the same time as the punch, or the punch can be idle while the knives are working.

The machine is supplied with a new stripper. This is made of steel and can be adjusted to the thousandth part of an inch. The punches and dies can be adjusted to the machine instantly and without stopping the balance-wheel. The machine starts and stops with a treadle or box. All shafts, bolts or plungers are of steel. The tool is ready to cut or punch at any time by simply putting the foot on the treadle.

New Power Punching Press.

THE press illustrated herewith represents the middle size of a new series of five back-wheeled power punching-presses (called presses 51, 52, &c.) which have lately been put on the market by the Ferracute Machine Company, of Bridgeton, N. J., U. S. A. These presses are specially adapted for cutting and punching articles in bar and thick sheet metals, such as nuts and washers, hardware, nails, locks, clockwork, cutlery, carriage goods, watches, jewelry, silver and brass work, gas fixtures and lamp work, small parts of textile machinery, agricultural implements and musical instruments, and for trimming drop forgings, &c. They are built with the frame extending down in the form of a square hollow pedestal for a support, thus making them compact and simple. The shaft extends from front to back, and the fly-wheel is at the rear. They are heavily built and have forged steel shafts of large diameters.

Among the valuable improvements embodied in these presses may be mentioned the general design of the hollow column forming the frame, which is comparatively thin at the bottom, and swells out into large internal ribs to give the necessary strength between the bed and the shaft, the wide slide-bar having long bearing, thus securing firmness and accuracy for the dies; a new eccentric adjustment, by which the slide-bar can be instantly clamped in place in any desired position, and a graduated scale to facilitate the adjusting and enable the operator to more easily set the dies; an improved automatic clutch, which enables the operator to perfectly control the action of the press; a "safety-pin" to lock, clutch, so that the shaft can be revolved to any position, while the fly-wheel is in motion, thus dispensing with the need of a countershaft; an adjustable spring brake which controls the motion of the press and adapts it to various speeds; a treadle-lock, by which the treadle can be held down for continuous running when required; also die and stripper clamps, by which dies and strippers can be held securely in place without the use of bolts.

A number of extra attachments or appliances adapt these presses to a great variety of work and increase their usefulness. They consist of a positive stop, by which the slide-bar is prevented from making more than one stroke when the treadle is depressed until the locking arrangement has been released, even though the treadle be held down for an indefinite period; an adjustable stroke, by which the slide-bar can have a short stroke for heavy work and a long one for special work requiring less power; a shelf which may be bolted to either side of the press for holding work or tools; a pan to catch punchings and "drop-through" work, which may also be reversed and used as an inclined chute to catch work and slide it over to the left of the press. The weights in this series of presses run

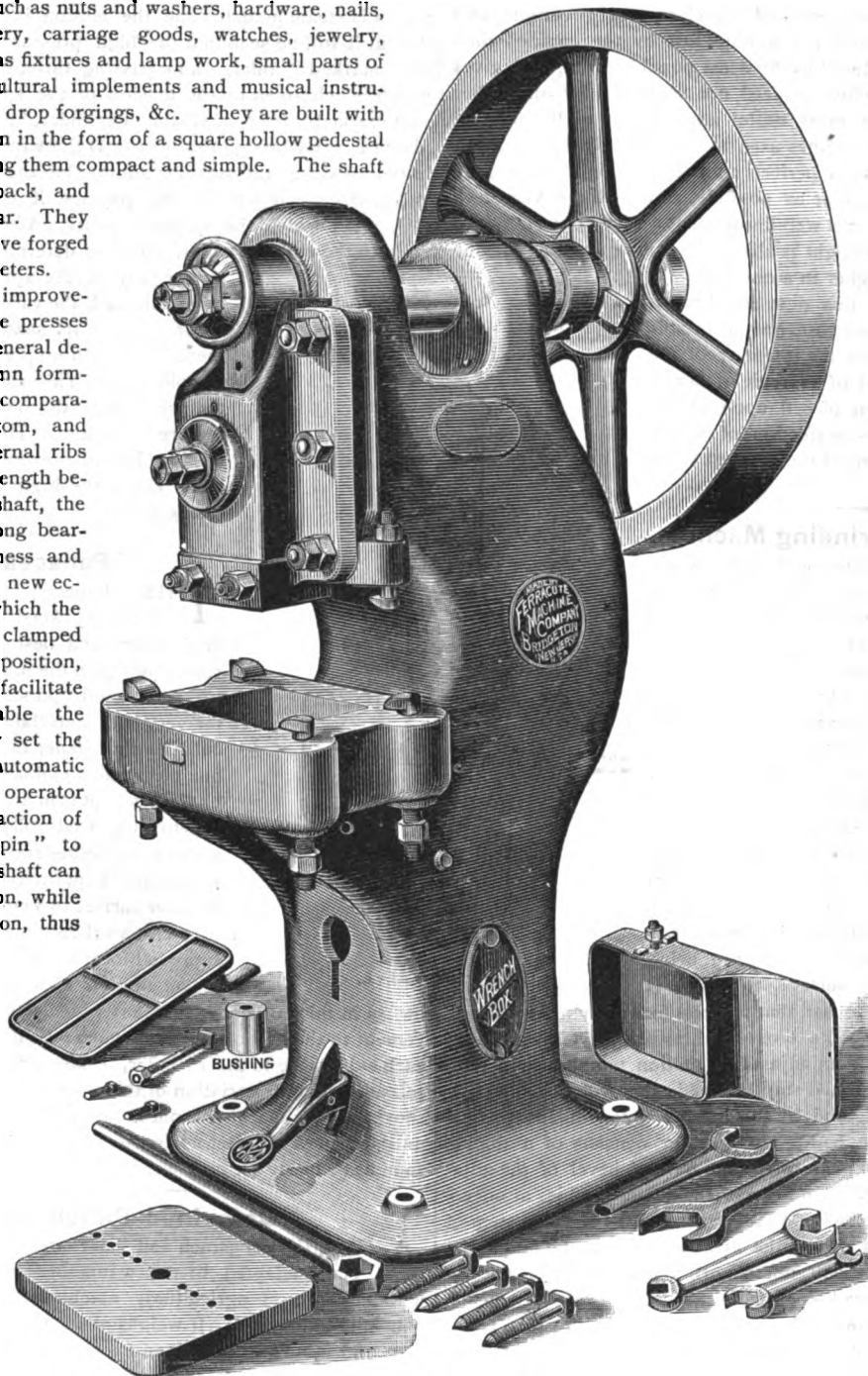
from 700 pounds in the smallest (press 51) to 5,700 pounds in the largest (press 55). The smallest press will cut an inch round hole in one-eighth inch iron, while the largest will cut the same size hole in one-inch iron. They are also so arranged that gearing can be added to any of the five sizes at a small extra cost, which adapts them to a great variety of work requiring slow motion and great power.

The dimensions of the press 53, illustrated, are as follows: Weight 3,000 pounds; height from floor to top of fly-wheel, 74 inches; hole through bed, 8 inches by 10 inches; width between die clamps in the clear, 15 inches; distance back from centre of slide-bar frame, 8 inches; height from bed to slide-bar when at highest point, $7\frac{1}{2}$ inches; stroke of slide-bar, $1\frac{1}{2}$ inches; adjustment of slide-bar, 1 inch; diameter of fly-wheel, 38 inches; width of fly-wheel, 6 inches; weight of fly-wheel, 750 pounds; speed of fly-wheel, 100 revolutions per minute.

—:O:—

A New Conveyor.

THIS is an improvement in conveyors particularly adapted to flour mills, but it can be used for a great variety of other purposes. The shaft consists of a tube of iron or steel, such as an inch and a quarter gas-pipe of the required length, into which is forced a core of soft wood. Sockets about two inches apart are drilled transversely through the shaft on two lines parallel with the axis of the tube, the sockets in one line breaking spaces with those in the other. To the extent of the thickness of the tube the sockets are cut a little larger than those portions extending through the core of the tube, being in the metal about nine sixteenths of an inch in diameter, and through the wood about half an inch. The flights are of the usual character,



PRESS 53—SCALE ☆ REAL SIZE.

and their shanks are a little larger in diameter than the sockets in the wooden core, so that when driven into the sockets they will embed themselves in the wood and be held with sufficient rigidity without other fastening. The shanks may be coated with glue before being driven in; but this is not essential. Each flight is set at an angle of about forty-five degrees with respect to the shaft, and the series constitutes a spiral. Instead of filling the tube with wood, it may be filled with other substances capable of being readily bored for the sockets, and having sufficient elasticity to hold flight shanks with firmness. The shanks do not necessarily extend entirely through the socket.

Hardware.

"Protean" Display Frame.

THE accompanying illustration shows a device known as the Protean display frame, and which is capable of endless adjustments, and can be used in the ordinary manner of display frames, but in a variety of unique and peculiar positions and of different heights, one adjustment being shown by the cut. This is aptly called the "missing link" in window decoration, and it supplies a need which has long been felt. The frame is self-bracing, simple in construction, substantial, economical and attractive. No expert or mechanic is needed to put it up or take it down. It is adapted to any size or shape of window, and it can be packed in small compass. It can be almost instantly elevated or depressed; the arms can be extended backward or forward, and giving an opportunity for frequent changes in the appearance of the window display or as often as the merchant redresses his frame. From these features it aptly acquires the name "Protean."

Bench Vice.

THE bench vice of which an illustration is presented is not an experiment, but an article of established and time-tried excellence. It is strong and durable, made of the very best material, with steel jaws and wrought-iron screws. It is attached to the bench by means of the bolt shown in the illustration on the bottom of the vice. This bolt slides in the groove and thus renders the vice adjustable for its entire length. The width of the jaw is $3\frac{1}{2}$ inches; the opening between the jaws is 5 inches, and the weight of the vice 12 pounds. The manufacturers assert that for the money which it costs there is no vice made which will prove as serviceable as this, and from which the user will derive an equal degree of satisfaction.

Fence-Wire Stretcher.

AN exceedingly powerful and portable little device for stretching fence wire, or for drawing together the ends of a broken wire, has been brought out. By means of this device a fence that is baggy and limber can be drawn to a stiff tension, or in the construction of a new fence the wires can be stretched as tightly as is desired. When a fence wire is broken it is extremely difficult to draw the ends together enough to make a splice with the means in ordinary use, but it can be done with this device with perfect ease. The stretcher is composed of a small frame consisting of two parallel side-bars united centrally by a cross-piece, somewhat like the letter H, and is securely braced to prevent the strain from changing the relation of the parts. The forward ends of the side-bars terminate with eyes in which is journaled a crank-shaft provided with a staple. The rear end of the sides is formed with hooks which retain a bail to be placed around the post when stretching the wire. A small stout pulley is secured to the connecting cross-piece within the frame and around it passes a piece of rope that projects forwardly. After passing over the pulley it is passed through the staple on the crank-shaft, thence rearwardly a short distance. The ends of this rope are tipped with metallic cam clutches that take an uncompromising bite on the wire ends when drawing them together, and

the tighter the pull the firmer the hold. The crank-shaft is provided with a pawl and ratchet so that the take-up is retained until secured.

Saw-Set and Guide.

A PRACTICAL combination of a saw-set, saw gauge and raker guide, in one small handy tool, is made of metal in such a manner as to produce an instrument which is light in weight and neat in appearance. Two slots are made in the rounded end of the plate forming the stock, and one is a little broader than the other. Each is cut in from the edge opposite to the other, and terminates in a hole, as usual. These slots are intended for the insertion of the saw teeth, in the operation of setting, the larger slot being adapted for cross-cut saws only, and the smaller one for hand and other small saws. A slot is made in the central part of the stock for the insertion of the rakes of a cross-cut saw while being jointed.

In the central part of the stock is a steel plate having a smooth surface over which the file passes while jointing the rakers. A plate of rubber, placed between the middle of the tool and the steel plate, is to be used instead of a metallic spring to raise or lower the steel plate, by means of screws, to suit the required length of the rakers. By turning a screw located on the other end of the stock, the amount of set is determined when placed, together with two projections near the central part of the stock, against the side of the saws, leaving a third projection on a level with the point of the

tooth. Another screw operates in the same way, in conjunction with two other central projections, in determining the amount of set in buck, hand or other narrow saws. The stock of this device is made by the drop forging process, of steel casting or malleable iron. The weight being but a trifle the cost of material is very small. The screws and other attached parts are inexpensive and but little labor is required to prepare the different parts to be assembled and form the complete tool ready for use.

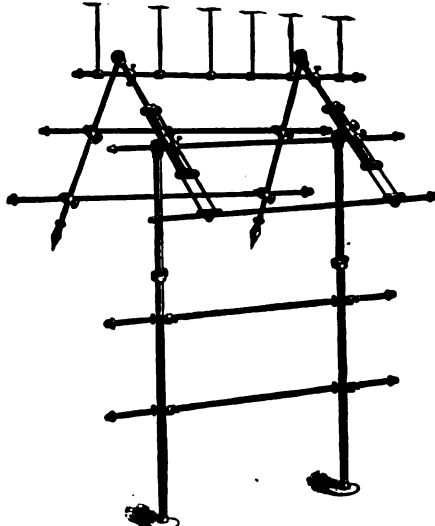
Flooring Clamp.

CARPENTERS will welcome any tool which will enable them to readily unite the joints of tongued and grooved lumber.

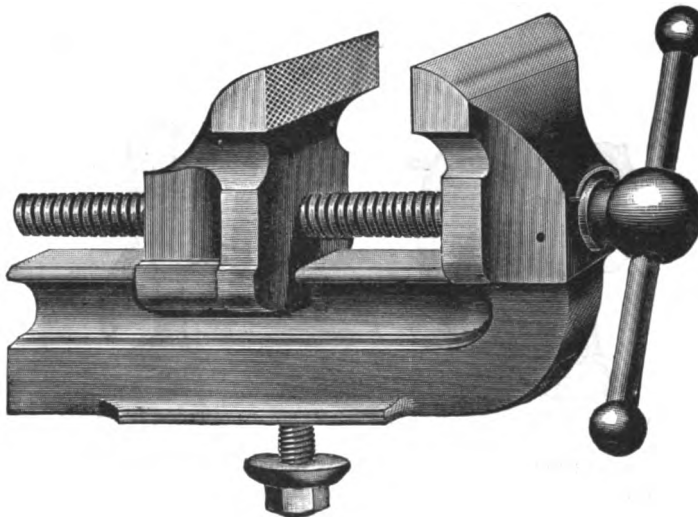
A new clamp is said to provide simple and effective means for forcing the joints of flooring or ceiling together as the strips are laid.

In construction this tool is a lever formed of iron or steel and having a point at the end, which projects laterally from the body of the lever, and is bent outward slightly beyond the end of the lever. On the side of the lever near the pointed extremity a carved arm projects at right angles, and its extremity carries a point which is directed toward the body and is located above the point at the end of the lever. The space between the points of the lever and curved arm is sufficient to admit of placing the lever on a joist, with the points on opposite sides.

By pushing the long arm of the lever forward against the edge of the strip of flooring or ceiling, or against a block placed on the edge of the strip, the strip of flooring may be forced against the edge of the strip last laid and held while it is nailed, so that a perfect joint is secured.



"PROTEAN" DISPLAY FRAME.



BENCH VICE.

Force Pumps.

UNDER this head are included a great number of pumps intended for a variety of uses, as manufactured by the Goulds Manufacturing Company. This firm, with an experience of over thirty-five years, has perfected its products to an extent which enables it to offer pumps adapted to a great range of requirements, constructed on ascertained and practical principles, effective in operation, strong and durable. It makes pumps for domestic use, for manufacturing purposes, farming and irrigating requirements, ships' pumps, steam-boiler pumps, &c. The accompanying illustrations show the forms of some of these products, concerning which the following descriptions will give some further information:

The revolving top cistern-pump is one of several styles of pumps for use in cisterns or wells where the water is not to be lifted more than 25 feet. The base is almost flat, and is made to bolt to the platform; the cylinder is bored and polished. The base is almost flat, and not so broad; the brass tube and flange form the valve seat, and are held from turning by projections under the flange; screw-threads are cut on the extremity of the tube to take a wrought-iron pipe coupling where gas pipe is used, or a cast-iron nut with brass tube where lead pipe is used. The plunger is jointed at the top where the rod enters it, and is turned to fit the cylinder closely. It is fitted for lead or ordered.

The double-acting force-pump is designed for shallow wells up to 30 feet in depth, and is fitted for attachment to a wind-engine. The top revolves to any point and is not rigid; there is only one cylinder

the spout by bolts, with a packing between. The air-chamber can make a quarter, half or three-quarter turn after taking out the bolts in flanges, without extra fitting. The air-chamber can be removed and a check-valve substituted without extra fitting.

The hand rotary force pump will lift water as far as any piston-pump and work against any pressure, from ten to fifty pounds, discharging a constant stream at any desired point remote from the pump. It is adapted for use in cisterns and wells, for pumping hot or cold water, wines, liquors, &c., filling still boilers or those working under moderate steam-pressure.

The hydraulic ram is intended to supply dwellings, factories, villages, railway stations, stockyards, &c., with running water. It is self-operating, all that is required being a head of water, the amount of fall determining the relative efficiency of the ram. This ram will elevate water, according to the height of the supply fountain, as much as 150 feet, driving water a distance of from 100 to 200 rods. It is made of iron and bronze.

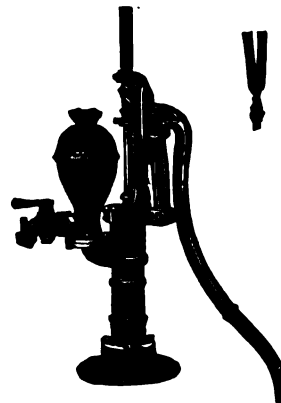
As before remarked, the cuts illustrate only a few of the pumps made by the company mentioned. Fuller information can be gathered from the firm's illustrated catalogue.

Pulverizing Attachment for Plows.

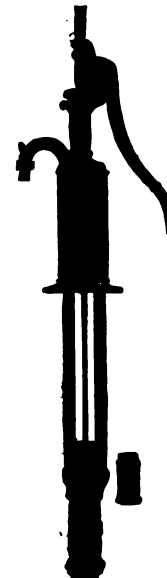
A NEW pulverizing attachment for plows consists of a series of teeth secured to a bar which projects obliquely outward from the rear face of the mold-board. For this purpose suitable holes are formed in the mold-board for countersunk bolt heads, and the bar can be smoothly and rigidly secured in position. This bar is of such a length as to have its teeth or cutters engage the furrow slice just as it



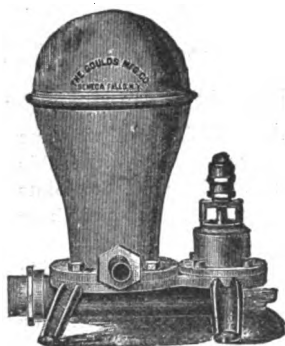
HOUSE-PUMP.



"PACIFIC" PUMP.



DOUBLE-ACTING PUMP.



IMPROVED HYDRAULIC RAM.



HAND ROTARY FORCE-PUMP.



REVOLVING-TOP CISTERN-PUMP.



HAND FORCE-PUMP.

and plunger, and friction is reduced to minimum; the water passages are very large and are without bend or curve.

The "Pacific" force pump is made for hand or windmill use. It is made in the best manner, combining strength with graceful proportions; it has brass-cased rods, brass stuffing-box, and is provided with iron cocks with brass plugs, and is furnished with a forked rod instead of lever and bearer, if required.

The hand force-pump is made in a number of sizes and styles in iron or brass, with air-chambers or with check-valves, and is provided with appliances which will keep it from freezing.

The house force-pump is a single-action suction-pump, which is generally employed for lifting water from wells or cisterns and forcing it up into a more elevated part of the house, for bath-rooms, filling tanks, &c. It is provided with an air-chamber, which insures a continuous stream of water, and relieves the pipe from the concussion of the water. The flange of the air-chamber is fastened to the flange of

is well turned over, and all clods or lumps are thoroughly sliced up, thus leaving the ground practically in the same condition as if worked by a regular harrow. This operation adds so very slightly to the draft that it is not noticeable. If any objection should be raised in regard to "side draft," it might be said that the very little lateral stress of the beam can easily and amply be corrected by the lateral adjustment of the clevis at the forward end of the beam, so that, even if the objection were to exist, it would be entirely overcome.

A considerable range of adjustment can be provided for this device by having the bar-plate, which covers the teeth, provided with holes in different positions so that the teeth may engage the furrow slice at any desired depth.

In a great majority of cases the ground plowed with this attachment added would require no further pulverizing, and thus farm work would be greatly facilitated.

Fancy Goods, Stationery & Paper

Silicate Sliding-Slate.

THE latest novelty in school appliances is the patent silicate sliding-slate and frame, as shown by the accompanying cut. The slate is made to slide in and out at pleasure from the top, and a new slate can be substituted when the old one is worn out. The frame is of hardwood and strongly made and will wear for a lifetime. The slate is light, noiseless and durable and cannot be broken by falling. The advantages over the old style stone slate are that the school is free from the rattling noise of the heavy slate, and children do not load themselves down and tire their hands in holding the slate. Besides this the new patent slate has a white surface on one side for lead-pencil use and a blank surface on the other side for slate-pencil, or it can be had all black or all white.



SILICATE SLIDING SLATE.

Suspending Clip.

THE cut here given illustrates a hanging clip made of brass, which, as will be seen in the cut, has no spring to get out of order. To open the clip one has only to push forward on the hook, and to close it after the card or other article has been fixed in place the hook is pushed back in the position shown in the cut. The inside faces of the clip are smooth and consequently cannot injure or deface goods, while the jaws are so firmly held together as to be able to sustain the weight of quite heavy articles. This new hanging clip is neat looking, serviceable, is easily attached and detached, and above all does not in any way mark or deface the articles it is used to suspend.

Patent Envelope-Holder.

RAMSER'S patent envelope-holder, an illustration of which is herewith presented, is a very neat and useful device. It consists of a box, with a holding capacity of five hundred envelopes, which are fed downward to the bottom by means of a curve in the bottom of the box, until the last one is taken out, the envelopes being pushed forward, so that the bottom one is always, so to speak, "on tap." This holder is made of metal and is adjustable to any size of envelope desired. A box for outgoing mail is attached to the front and the whole arrangement can be hung up, or it can be stood on a desk. There is a sliding cover, on removing which the envelopes are placed in the box, with the front, or address side, at the bottom. and the flap is turned, so that the envelopes will come out smoothly. The cover is replaced either on the first or second side, according to the size of the envelopes; the holder is then hung up and it is ready for use. If the envelopes are put in smoothly and evenly they will feed down to the last one.



Papeterie and Writing Desk.

A COMBINED papeterie and writing desk has just been brought out. In this device the ends of the box are made with vertical grooves which retain

a sliding-board or plate which has on its top an ornamental strip, and on its front receptacles for paper, envelopes and other articles. On the front of the box is a shelf, above which is a spring-clamp, these attachments being for the reception of an inkstand. The ends of the case are beveled off, partly forming inclined edges, but leaving a portion horizontal or parallel to the bottom. The front, which reaches only to the beginning of the inclined tops or edges of the ends, is pivoted between and to the ends, so as to turn freely outward. The top is fixed to the upper edge of the front at an angle corresponding to the angle of the edges, and extends the length of the inclined edges, so that its upper edge passes just under the projecting edge of the

top plate or piece when the case is closed. This leaves the unbeveled parts of the ends to be covered by the strip or top. A pocket is attached to the inside surface of the top and to the front straps, loops or other devices, for holding pen-holders, eraser, paper-knife, &c.

The inclined desk is a board suitably covered, having one edge hinged near the free edge of the top and the opposite edge swinging free, but arranged to rest against the front near its bottom edge, the edge of the desk being beveled, so that it will lie close against the front, where it may be secured by a button. As it is necessary that the boxes or receptacles for paper, &c., should rise when the case is opened, in order that the paper, ink, &c., may be readily accessible, the plate or board is connected with the pivoted front, so that when the case is opened the boxes are thrown up into an accessible position. This connection consists of two bars or rods, placed between the boxes and the ends of the case, one end of each strip being hinged to the board, and the opposite end hinged to the bottom edge of the front.

When the case is opened by turning the top and front, the lower edge of the front is thrown up, and thereby the rods are caused to force the plate upward in the direction of its arrow, and this raises the boxes until they are above the level of the rear or inner edge of the desk, and the desk assumes a position convenient for writing. The paper, envelopes, &c., are not disarranged, and they are easily accessible, as are also the inkstand, paper-knife, eraser, pen-holder, &c.

When the case is closed, the movement permits the sliding-board and boxes to descend out of the way of the top, which turns over and rests upon the inclined edges of the ends, with its free edge just under the projecting edge of the ornamental strip and the front becomes upright, the case presenting the appearance of an ordinary papeterie.

Color or Ink Pad.

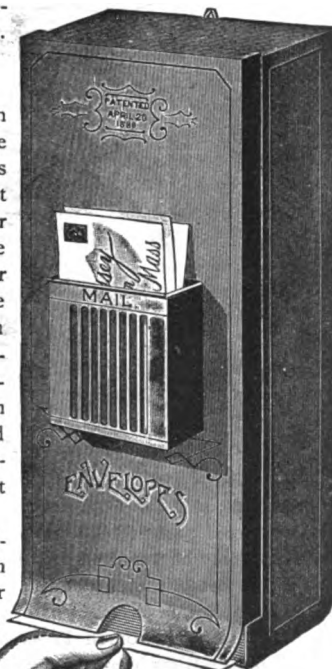
THIS is an improvement in ink or color pads, such as are employed for inking hand-stamps and the like, and has for its object to provide pads contrived in better form for containing and yielding the ink, and having a case adapted for protecting them from the dust while not in use without interference with or detriment to the hygroscopic properties of the pad, to prevent the drying and hardening, as the common pads do when closed overnight. and to avoid the care and trouble of frequently renewing the ink or solvent substance.

Any approved kind of textile ink-pad is used in two plies, of which the lower one is preferably of softer texture, and is wholly, or to the greater extent, charged with the ink or coloring matter,

and constitutes the "container," while the upper one is mainly charged with glycerine and alum or other sol-

vent, and serves to take the ink up from the container by capillary action, and by the effect produced by the pressure of the stamp and the recoil of the fibres when the stamp is removed.

The textile portion of the pad is arranged in a case of tin, having a cover to close it for excluding the dust when the pad is not in use, and the case has open passages through the sides and ends for the circulation of air, in order that the process of absorption of moisture from the air may continue all the same when the box is closed, by the glycerine or other solvent of the ink contained in the feeder, whose surface is exposed to the air, so that the ink will be in fit condition for use when the box is opened.



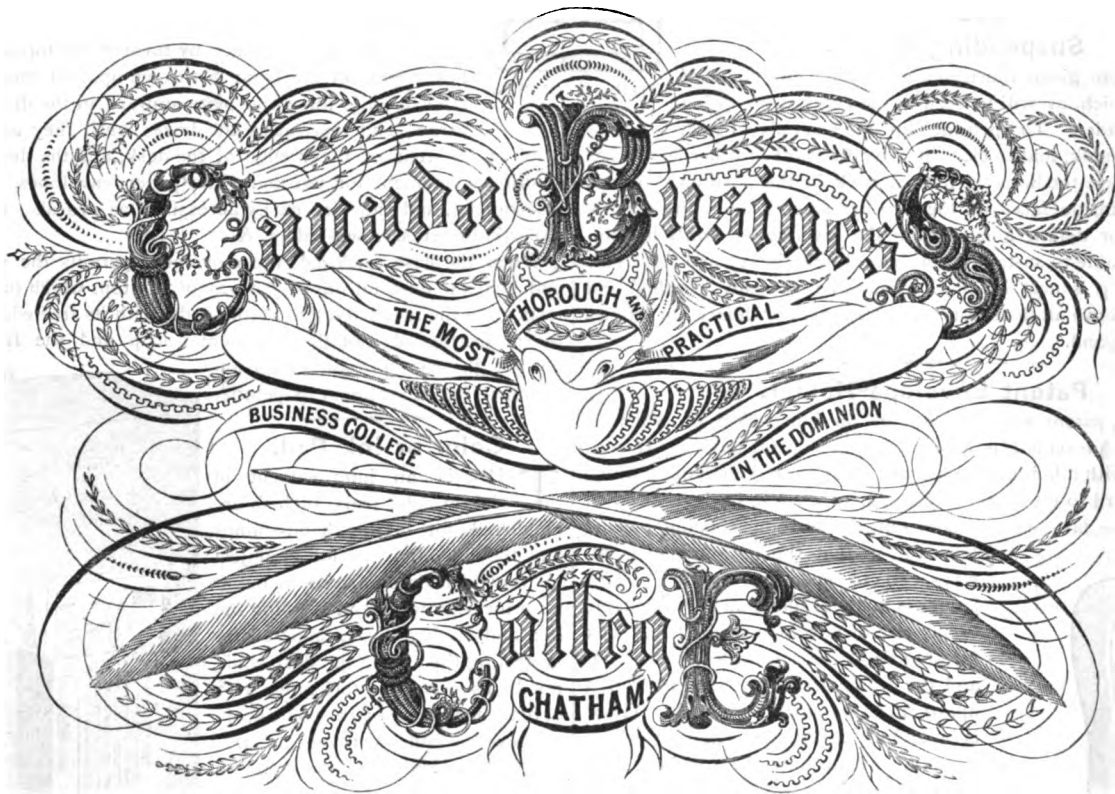
PATENT ENVELOPE-HOLDER.

Educational.

Business Education.

THE entry of young men and women into business life needs a certain amount of education. It is not enough to go through the ordinary school course, or to encounter such discipline as prevails in institutions of general learning. This has become so evident that colleges and universities make provision for technical schools and present methods for conveying the information sought by those who devote themselves to professional life and scientific research. Strange to say, the business feature of education occupies the least important position—if it is suggested at all—in the curriculum of what are generally regarded as the highest schools of mental discipline and attainment. The science of bookkeeping—for bookkeeping is a science, exact in its perfection—the knowledge of commercial forms

it also adapts him to becoming a useful and honorable member of the community. General Garfield, late President of the United States, once said: "Business colleges originated as a protest against the insufficiency of a system of education—as a protest against the failure, the absolute failure, of schools and colleges to fit young men and women for the business of life. The people are making a grave charge against our system of higher education when they complain that it is disconnected from the active business of life. It is a charge to which our colleges cannot plead guilty and live. They must rectify the fault or miserably fail of their great purpose. There is scarcely a more pitiable sight than to see here and there learned men, so-called, who have graduated in our own and the universities of Europe with high honors; men who know the whole gamut of classical learning—who have sounded the depths of mathematical and speculative philosophy—and yet who could not make out a bill of sale or invoice if the whole world depended on it." Horace Greeley, on another occasion, remarked: "And so the



FACSIMILE OF PEN AND INK DRAWING—CANADA BUSINESS COLLEGE.

and practices, and the acquirement of that special information most valuable to the person who proposes to engage in commercial life, would probably be acquired only by hard practical experience, were it not for the establishment of schools which make these features of education the prime object of study and experiment.

Young men and women in every land, no matter how great their natural qualifications, derive great benefit from the advantages conferred by a course of study in what are known as business colleges. Institutions of this class must be eminently practical to be of value, and they must be managed by practical and competent teachers, capable of imparting the necessary information and of grounding the student in those principles which should govern all well-conducted business establishments.

It may be fairly claimed that, in these days of eminently practical ideas, a business education is the best education that a person can acquire. If it be asked why, the answer is that it fits the individual for the active duties of everyday life; it sharpens and develops the reasoning and perceptive faculties, enabling the man of business to cope successfully with all of the intricacies of modern commercial dealings. It is, therefore, eminently practical in all of its bearings, and while it fits the student to earn a respectable livelihood

world waits—not in one sphere, not in one place alone, but in the old countries and the new, inviting crowded hives of population to people solitary regions—waits for business men, men of capacity, men of power, men of creative thought, who know how to redeem its waste places and to render idle populations industrious and thrifty. And here it is, in my judgment, that business colleges will find their greatest sphere of utility; that is, not in special training for special pursuits, as too many believe to-day, but in developing a larger capacity to apprehend and to seize the opportunities that exist so abundantly on every side for giving new activity and new power to the creation of wealth."

Enough has been said to impress the importance of a business education and the advantages of those schools which are devoted solely to business teaching. One of the best examples of this system may be found in the Canada Business College, located at Chatham, Ont. Here a full knowledge of bookkeeping, commercial forms and usages, commercial law and other indispensable information, including instruction in mathematics, penmanship, phonography or "shorthand," &c., may be acquired under the general supervision of the principal, D. McLachlan, of whose skill with the pen the facsimile illustration on this page affords an example.

Metals and Mining.

Natural Gas Outdone.

A SPECIAL dispatch to the *Chicago Tribune* from Canton, Ohio, dated November 19, tells of a wonderful invention which may throw natural gas into the shade. It says:

"The news comes in response to an inquiry to Mr. W. B. Sutler, a neighbor of the inventor, J. J. Johnson, of Columbiana, Ohio. Mr. W. B. Sutler is a prominent manufacturer of that place. Mr. Sutler replies to a letter addressed him by a Canton business man and says Johnson has been working on the invention for some time, and has succeeded in perfecting his process to such an extent that wonderful results were accomplished. The principle of the machine is a system of siphons, and air is forced alternately through water and through oil, resulting in gas. The tests made by Mr. Johnson with the machine first finished by him resulted in getting 450,000 cubic feet of gas from a barrel of oil. After this immense quantity of gas has been made the residue of oil, as a lubricator, is said to be worth as much as the barrel of oil originally. It is cheaper than daylight, for after getting the light and fuel you have the original value of material you get it from.

"Mr. Johnson made a trip to Boston and had a conference with capitalists regarding the sale of the right to the invention. After his representations chemists from Harvard College were sent to Columbiana to investigate. They reported favorably upon it, and Johnson was given \$1,000,000 for the right in the United States, with the exception of Pennsylvania, Ohio, Indiana, and Illinois. Later he sold the right to these four States, with the exception of Columbiana County, to a Pittsburg syndicate for \$500,000. The men from Boston who examined the machine said that when perfected no doubt a million feet of gas could be produced from a barrel of oil. As an illuminant it is said to be far superior to the gas manufactured under the ordinary process, and as a fuel is vastly better than natural gas. Its heat is intense. A bar of lead was thrust into the blaze and immediately fell apart. From a pipe from Johnson's laboratory issues a blaze eight feet long that makes an intensely brilliant light. When knowledge of the invention gets abroad it is expected to create a sensation, as it will completely revolutionize the matter of fuel and lighting. The parties who have gained control of the invention have been endeavoring to keep it quiet until they were ready to begin operations."

Melting Steel with Natural Gas.

AT the Wayne Iron and Steel Works, in Pittsburg, may be seen the latest improvement in the way of a crucible furnace for steel-melting with natural gas. The furnace in question is about 27' long by about 12' 6" wide, and is a reversible-draft structure with regenerative chambers at each side. The furnace is divided in its main chamber into six divisions or chambers, each of a size to properly admit six crucibles of No. 70 size, making thirty-six pots in heating at once, and each six-pot chamber being covered by a three-part fire-brick cover, which allows the lifting of a single pot without the uncovering of the others in the same small chamber. There is nothing of this furnace below the ground line but its foundation walls, the regenerative chambers being at the sides and full length of the furnace, but not quite so high. A platform for the workmen is level with the furnace top. There are six ports to each chamber—three at each side—through which the heated air and natural gas are admitted, the latter through a 1/8-inch nozzle at each port. The gas company's gauge shows a pressure of two ounces as sufficient for the proper operation of the furnace. Economy does not compel the working of the entire six chambers: part of the whole number can be worked and the balance remain idle. Air is admitted at one end of the furnace for both regenerative chambers, and two very plain round valves, to be raised and lowered alternately and operating in connection with two dampers, regulate the air admitted and its reversal. It is just here that mention should be made of the crucible used at these same works. Usually crucibles are deemed to have given a proper duration when five or six heats have been made in each. The practice at the Wayne Works is to use a mixture of plumbago (old crucibles), silicon (white sand is the kind employed) and kaolin water. This is made into semi-fluid wash,

and sufficient is poured inside of a crucible, which, when the latter is given a quick turn by an expert boy, flows around the inside and makes a layer just replacing the worn-away part. This is only done when the crucible shows a certain degree of worn inner surface, and the practice is to consider that each man must yield a service of eight heats. Patents on the furnace, as well as the crucible wash, were granted to John Pedder, the superintendent of the works.

Imports of Iron, Steel and Metals for Ten Months.

THE returns of the Bureau of Statistics covering the imports and exports for the first ten months of the fiscal year reflect the heavy movement which has been going on for some time, and which is likely to continue at as heavy a rate at least. The following table covers those items of which quantities are given in the returns, the unit being the gross ton:

IMPORTS OF IRON AND STEEL, TEN MONTHS.

	1886.	1885.
Iron ore.....gross tons.	854,362	345,844
Pig iron.....	321,444	116,244
Scrap iron.....	56,392	10,256
Scrap steel.....	5,220	1,510
Bar iron.....	24,160	25,203
Iron rails.....	6	51
Steel rails.....	20,228	2,063
Cotton ties.....	9,917	17,648
Hoop, band and scroll iron.....	114	92
Steel hoops, bands, strips, sheets, &c.....	2,974	1,019
Steel ingots, blooms, billets, slabs and bars.....	97,610	19,299
Sheet plate and taggers iron.....	4,900	4,752
Tin plates.....	222,442	195,465
Wire rods.....	117,704	71,329
Wire and wire rope.....	2,083	1,972
Anvils, axles and forgings.....	795	509
Chains.....	458	445

The imports of ore indicate that during the current year we will take fully 1,000,000 tons. The receipts of pig iron have been very heavy indeed. A large proportion of it is probably spiegeleisen and ferro-manganese, for the greater part of the supply of which we are still dependent upon foreign producers. The sales of Bessemer pig have been light for some time, and the requirements for the first six months of 1887 on the part of the rail mills have been met without calling for any notable quantity of foreign material. The sales of imported foundry irons during the current year have been insignificant, and thus far the prices of the American irons have not been high enough above the foreign to induce any imports beyond what is called for on the part of those who believe that they cannot get along without some Scotch pig in their mixtures. Of scrap iron and old rails the imports are growing heavier, and if it were not for the fact that stocks in England are held by large railroads, who are said to be carrying them on their books at much higher figures, the receipts would be considerably heavier. Steel rails have not yet arrived in the large quantities expected, but on the other hand the cruder forms, blooms, billets and slabs, show a large increase. The imports of wire rods are considerably greater than was thought probable earlier in the year, when it was believed that the growing home production would crowd back some of the foreign make. It is explained that the consumption of wire for many miscellaneous purposes has developed considerably, and that notably the rapid advances of the wire nail have much to do with this circumstance.

In metals the imports of pig tin show an increase to 11,915 net tons from 9,881 net tons in 1885. The fine copper contents of ore imported, principally Canadian pyrites, were 3,881,346 pounds in 1886, against 2,962,264 pounds in the first ten months of 1885. The imports of pig and old copper were 519,613 and 563,349 pounds respectively. The exports of copper, on the other hand, were 22,490 and 30,362 tons of "ore," while of ingot copper the decline was from 32,900,869 pounds in ten months of 1885 to 14,966,107 pounds in the same period of 1886. The imports of lead are not specified. Of spelter the receipts went up from 1,210 tons in ten months of 1885 to 1,878 tons in 1886.

In exports of iron and steel manufactures we have barely held our own, the figure for 1886 standing \$12,233,199, against \$12,871,393 in 1885. The only notable increase was in "saws and tools," from \$880,909 in 1885 to \$1,027,794 in 1886. Of nails the exports were 88,993 kegs in 1886 against 74,240 kegs in 1885, while the exports of wire grew from 5,220,331 pounds in 1885 to 7,150,166 pounds in 1886, the latter being a growing business—*Iron Age*.

American Industries.

Blackwell's Durham Smoking Tobacco.

IN America by far the finest flavored and purest tobacco grown comes from what is termed the "Golden Belt" of North Carolina. Analyses by the well-known Dr. A. Voelker, F.R.S., consulting chemist Royal Agricultural Society, England, show only a slight trace of nitrates in this tobacco; the soil in which it is grown supplies but a scant degree of same to the leaf. The choicest offerings of this favored market are secured by the Blackwell's Durham Tobacco Company (successor to the original firm of W. T. Blackwell & Co.), of Durham, N. C. (which town is the head-centre of this district), and are used in the manufacture of its world-renowned "Bull" Durham smoking tobacco. This tobacco is known in America as "granulated." Instead of being long and stringy as "long cut," it is in small flakes or particles, which make it burn freely, easy drawing and clear and pleasant to smoke.

Blackwell's "Bull" Durham is of the finest tobacco to be found in that region, in its handiest and best form for the pipe. Pipe-smoking is the real test of a tobacco; it is the regal way of smoking; you get more directly at the flavor and fragrance; you take the smoke cooler, and the tonic robbed of all deleterious matter. A good pipe you can get anywhere, but not so the tobacco; and you will never know the enchantment of a perfect smoke until you have tried Blackwell's Genuine "Bull" Durham smoking tobacco.

The reputation of this brand is "self made." Durham (N. C.) is historic in the annals of America. It was neutral ground while Sherman and Johnston, the leaders of two great armies of the late war in the United States, were settling the terms of surrender. Soldiers of both armies filled their pouches with the tobacco stored there. The war terminated and the men scattered to their homes in all sections of the United States. Soon orders came from the North, East, South and West for "more of that elegant tobacco." At that time ten men ran an unknown factory. Now it employs 800 operatives; has offices in all of the large cities of the United States; uses the best (and only the best) tobacco to be had from a section which offers only first-class stock. The world over "Bull Durham" is now the synonym for the best smoking tobacco. And what has made the reputation which this brand so deservedly enjoys? Nothing more or less than real merit. The factory as it now stands, with all of its adjuncts, covers more than twenty acres of ground. Its capacity is 8,000,000 pounds per annum; and the first six months of the present year showed that the company had done the largest business of any six months in its history.

In March of this year it was decided to establish agencies in all countries in which such a thing were possible. With this idea J. M. Duncan, the representative of the company, left San Francisco in the following month for a trip around the world. At this writing connections have been formed in the Hawaiian Islands, New Zealand, Tasmania, Australia, East Indies, China, Japan and Port Elizabeth, South Africa, with a number of points yet to visit. Last year connections were made covering Great Britain, France, Germany, Holland, Belgium, Sweden and Norway, South and Central America and the West Indies.

Such has been the popularity and sale of this famous brand as to lead to all sorts of pirating of the trade-mark. All of these counterfeits have been driven from the field, but to such an extent was this counterfeiting carried on that it did not cease till 1878, when the United States Circuit Court of North Carolina decided that "W. T. Blackwell & Co. have the sole and exclusive right to the word 'Durham' on smoking tobacco, and to the facsimile of a Durham bull as a trade-mark." To secure itself as much as possible against further trouble of the kind the company has had this trade-mark registered in each country in which it has established agencies or connections.

Can more be said? Not much. One thing, perhaps: If you handle tobacco, handle "Blackwell's Genuine 'Bull' Durham Smoking Tobacco."

and to be sure it is genuine look for the label, of which an illustration is given on this page.

This tobacco can now be found the world over. If it cannot be had in any locality write to the Blackwell's Durham Tobacco Company, Durham, N. C., and it will cause buyers to be advised of the nearest agency from which the tobacco can be procured.

Industrial Briefs.

The Kilbourne & Jacobs Manufacturing Company, Columbus, Ohio, is erecting new shops on a seven-acre tract of land between Russell and Warren streets, and on the line of the C., C. and I. Railroad. These shops are to be quite extensive, as will appear from the list of buildings, as follows: Truck shop, 60x200 feet; wood-working shop, 45x200 feet; machine shop, 45x200 feet; blacksmith shop, 75x150 feet; main set-up shop, 75x200 feet; stamping shop, 75x129 feet; punch and shear shop, 75x120 feet; sink warehouse, 45x160 feet; general warehouse, 45x314 feet; boiler-house, 40x60 feet. In addition to the above there will be buildings for the offices of the company, and for store-house, paint-house, &c. All of the buildings, with the exception of the stamping-room and main set-up shop, will be of brick, with slate roofs, and are to be first class in every particular. The stamping-room and large main set-up shop are to be of iron throughout, and absolutely fireproof—no wood whatever being used in their construction.

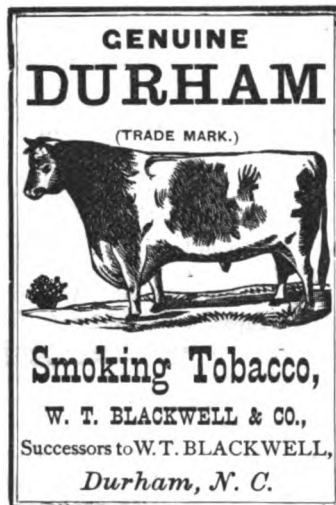
The Van Depoele Electric Manufacturing Company, of Chicago, is manufacturing now the largest electric generator in the world—capacity, 150 horse-power. The largest ones ever made before this were of 60 horse-power. This monster machine will be used by the Capital City Street Railway Company, of Montgomery, Ala., on its new electric street railway, which the Van Depoele Company is equipping.

Lively excitement has been produced in New Orleans cotton circles by a reduction of charges by the Commercial Press. Storage, 60 days, has been reduced from 50 to 40 cents; compressing, from 65 to 50 cents; drayage to the ship, from 25 to 15 and 18 cents. The *Times-Democrat* says: "It was the first announcement of what New Orleans has been so long waiting for and upon which her future so largely depends—a reduction from the present excessive charges in the handling of the great Southern staple, charges that have driven away a vast amount of business that belongs here."

The Tennessee Valley Iron and Railroad Company has completed arrangements with the Nashville and Chattanooga Railroad Company to extend its line to its property in Wayne County. The company owns thousands of acres of inexhaustible iron lands in that county, and it is thought that furnaces will be erected very soon.

The Bethlehem Iron Company is erecting a steel-plate and shafting mill, 650 feet long and 113 feet wide, which will be ready for occupancy in the early part of 1887. A wing, 91 feet wide and 700 feet long, is to be erected. No Bessemer steel will be used in the building, all the work being from the open-hearth steel. The company intends to manufacture steel armor-plate and has its eye on ordnance work, especially on the heavy steel forgings required by the United States Government.

The Putnam Woolen Company, Putnam, Conn., employing 400 hands, has voluntarily reduced the hours of labor from twelve to ten and a half per day, and has lately had 300 electric lights placed in its mill by the Mather Electric Company, of Hartford. This mill occupies one of the most beautiful positions on the Quinnebaug River at the Cargill Falls, on the site of the old Cargill grist mill. It has about 100 looms and produces about 12,000 yards of cassimere per week, consuming about 1,600 pounds of refined wool per week. The help are mostly French Canadians. Most of the machinery used in the mill is from Worcester, Mass. All of the mills at Putnam are running full time.



LABEL—BLACKWELL'S DURHAM.

Government Intelligence.

Legislative and Executive.

REORGANIZATION OF THE DIPLOMATIC SERVICE—CONSULAR AND REVENUE APPOINTMENTS—NAVAL NEWS.

THE second session of the Forty-ninth Congress has begun. Little has been done up to the present hour affecting the relations of the State Department or the status of its large body of diplomatic agents and consular officers. The President in his annual Message strongly urged the adoption of the improved methods for the management of the consular service as recommended in the accompanying report of the Secretary of State. The following extract from the Message referred to will show very conclusively what the Chief Executive thinks concerning this important matter. The President says :

"Pursuant to a provision of the Diplomatic and Consular Appropriation act approved July 1, 1886, the estimates submitted by the Secretary of State for the maintenance of the consular service have been recast on the basis of salaries for all officers to whom such allowance is deemed advisable. Advantage has been taken of this to redistribute the salaries of the officers now appropriated for in accordance with the work performed, the importance of the representative duties of the incumbent, and the cost of living at each post. The last consideration has been too often lost sight of in the allowances heretofore made. The compensation which may suffice for the decent maintenance of a worthy and capable officer in a position of onerous and representative trust at a post readily accessible, and where the necessities of life are abundant and cheap, may prove an inadequate pittance in distant lands, where the better part of a year's pay is consumed in reaching the post of duty, and where the comforts of ordinary civilized existence can only be obtained with difficulty and at exorbitant cost. I trust that, in considering the submitted schedules, no mistaken theory of economy will perpetuate a system which, in the past, has virtually closed to deserving talent many offices where capacity and attainments of a high order are indispensable, and in not a few instances has brought discredit on our national character and entailed embarrassment and even suffering on those deputed to uphold our dignity and interests abroad.

"In connection with this subject I earnestly reiterate the practical necessity of supplying some mode of trustworthy inspection and report of the manner in which the consulates are conducted. In the absence of such reliable information, efficiency can scarcely be rewarded or its opposite corrected. Increasing competition in trade has directed attention to the value of the consular reports printed by the Department of State, and the efforts of the government to extend the practical usefulness of these reports have created a wider demand for them at home and a spirit of emulation abroad. Constituting a record of the changes occurring in trade and of the progress of the arts and invention in foreign countries, they are much sought for by all interested in the subjects which they embrace."

At the first session of the present Congress, Perry Belmont, of New York, prepared and introduced a bill reorganizing the diplomatic and consular service of the United States and although the measure was unanimously reported favorably by the Committee on Foreign Affairs and a day set for its special consideration, it was crowded out by the mass of other business before the House. It is believed, however, that at this session the bill will be taken up and passed, and its friends feel very hopeful about the matter and are much encouraged by the words of the President and his Secretary of State.

A year ago something was said on this subject in the columns of THE MAIL and at that time the views now brought forward by the head of the State Department were advocated. Anyone who has studied the present system will heartily agree with the Secretary of State that all consular officers should receive salaries commensurate with their labors and large enough in sum to enable them to live comfortably, and also that, as far as practicable, American citizens should

be given charge of foreign posts of duty under the Diplomatic Department of the United States.

The Appropriation Committee of the House has had under consideration the Consular and Diplomatic Appropriation bill. It has finished its labors and the bill is now in the hands of the Public Printer, being printed for use of members. When it shall have been put in type it will be introduced into the House for immediate action. Few changes were made in the bill by the committee. Some of the recommendations of the Secretary, as embodied in the estimates sent from the Treasury Department, were not accepted.

The salary of the Minister to China remains as at present and the appointment of four secretaries of legation, to be detailed at any post, was not agreed to. Most of the suggestions emanating from the State Department, it is said, have been favorably considered by the Appropriation Committee. Last year the appropriation for the diplomatic service was \$595,000. This year the Secretary wants \$669,000. Last year the consular service received \$760,000, while this year the recommendations of the Secretary, with reorganization methods, call for \$1,048,000. This increase of item is largely, if not entirely, the result of the plan to give salaries in the place of fees, and it is believed by those familiar with the workings of the service that the amount of fees turned into the Treasury will fully make up the amount paid out in salaries.

It is quite probable that Mr. Belmont's bill, already referred to, will be modified so as to conform as nearly as possible with the suggestions and recommendations of the Secretary of State. When the Consular Appropriation bill comes before the House it will undoubtedly meet with opposition, by reason of its apparent increase of expenditures, and also from the fact that many letters of remonstrance from high-feed consular officers have been received by their friends in Congress protesting against any change of existing law whereby their present stipend may be curtailed.

The full Committee on Foreign Affairs held a meeting for the purpose of considering and in a certain measure reviewing the work of the Appropriation Committee touching this subject. The diplomatic part of the bill, as reported, was not touched, except that the committee agreed to make the mission to the Argentine Republic a full envoy plenipotentiary, changing it from a minister-resident, at a salary of \$7,500, to a higher dignity and a more comfortable salary of \$10,000. The committee also agreed to adopt the suggestions of ex-Minister Cox, who appeared before it, thus increasing the salary of the interpreter at the Turkish Legation from \$2,500 to \$5,000. The other recommendations of the Sub-Committee on Appropriations, which were the most important, affecting as they did the reorganization of the consular service, were adopted by the Foreign Affairs Committee.

The departments are unusually busy with increased work, caused by the reassembling of Congress. The State Department, however, continues its own unruffled way—dignified, fearless and undisturbed. The strong report of Mr. Bayard on the Fisheries question has been laid before the Senate, and the Cutting matter has received vigorous attention both from the Chief Executive and the Secretary of State.

Mr. Tree, the American Minister at Brussels, reports that the government of the Independent State of Congo has contracted with Walford & Co., of Antwerp, for the establishment of a regular line of Belgian steamers between Antwerp and the Congo. The vessels at first are to sail about once every six weeks, but it is the intention to have them sail once a month.

There is but little doubt, owing largely to recent discoveries and new facts concerning the Upper Congo basin, that this region will eventually be of great value to the trading, commercial world. The difficulty in the way at present is the lack of railroad facilities around the cataracts of the lower river; but as the Congo State has granted a concession to Belgian capitalists to build this road, and as the funds have been subscribed for the necessary work of engineers in surveying

and planning the route, it is highly probable that this hitherto unknown country will soon be brought into intimate and valuable relations with busy, active Christian civilization.

The State Department has received through the British Legation in this city an official invitation to take part in the International Exhibition to be held in Manchester, Eng., next year in commemoration of her Britannic Majesty's reign—a sort of jubilee year celebration. The purpose of the affair will be to show the progress made in the development of manufactures and of art during the reign of the present queen.

The British Minister having raised the question as to the right of a capitation tax on shipwrecked seamen, the Treasury Department has decided that shipwrecked British seamen who may stop at any port of the United States en route to England are not subject to the capitation tax.

The President has recognized the following-named foreign consular agents in this country: H. F. Tyson, for France, at Portland, Ore.; Rosendo Tarras, for the Argentine Republic, at Brunswick, Ga.; Andrew Cutting, for Argentine Republic, at Boston, Mass.; Rafael Varrios, for Mexico, at Laredo, Tex.; Leonardo Pietra Santa, for Mexico, at Philadelphia, Pa., and Francisco M. Lucena, for Venezuela, at Philadelphia, Pa.

The appointments made by the President during recess of the Senate have been sent to that body for action thereon. The following are those belonging to the Department of State:

General Dabney H. Maury to be Envoy Extraordinary and Minister Plenipotentiary to the Republic of Colombia. General Maury was a distinguished general in the army of the late Confederacy, and he is now at his new post of duty in Bogota, awaiting the action of the Senate.

To be consuls of the United States: William Gaston Allen, of South Carolina, at Piedras Negras; David T. Bunker, of Massachusetts, at Demerara; Amos T. Brown, of New York, at Clifton, Ontario; John P. Campbell, of California, at Tamatave; John Drayton, of South Carolina, at Tuxpan; Henry A. Ehninger, of New York, at Cienfuegos; Benjamin Folsom, of New York, at Sheffield; William R. Greathouse, of Louisiana, at Tampico; Charles T. Grellet, of California, at Algiers; William C. Hall, of New York, at Prescott; Alex. C. Jones, of Minnesota, at Chin Kiang; Charles Jonas, of Wisconsin, at Prague; Edward Johnson, of New Jersey, at Kehl; Leopold Moore, of New York, at Hull; Charles R. McCall, of Alabama, at Santos; Thomas F. Pettus, of Mississippi, at Ningpo; Seth A. Pratt, of Massachusetts, at Zanzibar; Otto E. Reimer, of New York, at Santiago de Cuba; Lewis Gebhard Reed, of New York, at Barbadoes; Enoch J. Smithers, of Delaware, at Tien-Tsin; Samuel A. Walton, of Kentucky, at Asuncion.

A large number of nominations belonging to other departments of the government were sent in at the same time, the only new appointment being that of Louis K. Church to be Governor of Dakota Territory, vice Gilbert Pierce, resigned.

To be Collectors of Internal Revenue: James A. Hanlon, for the Twenty-eighth District of New York; Joseph K. Roberts, for the District of Maryland; George L. Johnson, for the Tenth District of Ohio; Thomas Cooper, for the Eighth District of Illinois; Nelson F. Acers, for the District of Kansas; Simeon H. Calhoun, for the District of Nebraska; Joseph P. McGorty, for the District of New Mexico.

To be Appraisers of Merchandise: John W. Davis, for the District of Providence, R. I.; Francis B. Laurenson, for the District of Baltimore, Md.; Thaddeus S. Sharretts, for the District of Baltimore, Md.; Francis A. Hoffman, for the District of Chicago, Ill.

Other nominations are as follows: Charles B. Morton, of Maine, to be Commissioner of Navigation; Jesse B. Caldwell, of Indiana, to be Deputy Second Auditor of the Treasury; Lawrence N. Buford, of Mississippi, to be Deputy Fourth Auditor of the Treasury; Alfred E.

Lewis, of Pennsylvania, to be Deputy Fifth Auditor of the Treasury; Hugh A. Harolson, of Georgia, to be Deputy Auditor of the Treasury for the Post-Office Department; Third Lieutenant Howard M. Broadbent, of Pennsylvania, to be Second Lieutenant in the Revenue Service; Cyrus B. Fengar, of Connecticut, to be a Third Lieutenant in the Revenue Service; William W. Culver, of Kansas, to be a Third Lieutenant in the Revenue Service; James H. Brown, of District of Columbia, to be a Third Lieutenant in the Revenue Service.

To be Collectors of Customs: Edward Cushing, for the District of Belfast, Me.; John Cousens, District of Kennebunk, Me.; Samuel D. Leavitt, District of Passamaquoddy, Me.; Joseph E. Moore, District of Waldoborough, Me.; Daniel Magone, District of New York; Southey F. Miles, Eastern District of Maryland; Peter F. Cogbill, District of Petersburg, Va.; John F. Wheaton, District of Savannah, Ga.; Edward Hopkins, District of St. Johns, Fla.; Cooley Mann, District of Vicksburg, Miss.; Charles A. Warr, District of Huron, Mich.; Daniel J. Campan, District of Detroit, Mich.; Quincy A. Brooks, District of Puget Sound, Ore.; John McCaffarty, District of Alaska. To be Surveyors of Customs: Thomas F. Tobin, for the port of Memphis, Tenn.; Louis F. Weiler for the port of Michigan City, Ind.

From the Navy Department the following has been obtained as giving the latest news from our squadrons in foreign waters:

Admiral John Lee Davis, commanding the Asiatic station, reports from Yokohama, November 11:

The Marion (flagship) left Nagasaki October 25, and after passing through the Inland Sea reached Kobé October 27, where the usual visits of ceremony were made. On November 3, it being the birthday of the Emperor of Japan, the Governor gave a grand ball which I attended with my staff and a number of the ship's officers. Left Kobé November 4 and reached Yokohama November 5. Found an English force at anchor under Vice-Admiral Hamilton, consisting of the armored Audacious (flagship), swift cruiser Leander, C class corvettes Constance and Cleopatra, and gun-vessel Swift. Also the Italian rapid cruiser Rapido. The usual visits of ceremony have been exchanged and salutes fired.

The Omaha left Chemulpo about October 11, visited Cheefoo, China, and returned to Chemulpo October 29, and reached Nagasaki October 31. After giving liberty to the crew she is ordered to return to Chemulpo.

The Monocacy left Macao October 4, and reached Hong Kong October 5, and is probably now at Canton.

The Palos left Canton October 31, and after having her bottom cleaned was to leave for her winter station at Tien-Tsin.

Rear-Admiral S. R. Franklin, commanding the European squadron, reports to the Secretary of the Navy, from the U. S. S. Pensacola, at Palermo, Sicily, November 22, that the evening previous he received a dispatch from Commander Coffin, at Gibraltar, stating that Dr. Atlee was in the hospital from a compound fracture of the leg, and would be unserviceable for three months. Tryon officially requested an assistant surgeon for African cruise. Instructions were desired. Admiral Franklin immediately replied, directing him to await at Gibraltar the arrival of P. A. Surgeon Edgar, whom he ordered to join the Quinnebaug without delay. He proposed to sail from Palermo for Malta November 23, and from there he would proceed to Alexandria direct. The health of officers and crew was good.

Captain Gillis reports to the Navy Department from Callao, November 11, that the Adams sailed from Callao October 31, and reached Payta November 3, and left for Guayaquil November 6. She sailed from Guayaquil November 10, for Panama, in obedience to the department's telegraphic orders. The Iroquois was still at Callao, where she would remain until after the Hartford should sail for

San Francisco. Advices from the Shenandoah reported her at Mare Island, under the direct orders of the department.

Commander Day, commanding the Mohican, in a letter dated Apia, Samoa, September 13, said: "The prospect is now that I shall be able to leave for Easter Island and Valparaiso October 25, and I may be expected at the latter place about the middle of January."

Communications.

Grape and Olive Crops of Jerez de la Frontera.

CONSULAR AGENCY FOR THE UNITED STATES OF AMERICA, }
JEREZ DE LA FRONTERA, November 7, 1886. }

Editor American Mail and Export Journal:

READING always with interest your publication, THE AMERICAN MAIL AND EXPORT JOURNAL, my attention is called to the article on Spain, page 106 of the October number (this morning received by mail). The article to which I allude makes a general estimate of the yield to be expected from the vintage of Southern Europe. Referring to the observation "In Spain," &c., I think that a few remarks will here be pertinent, as the specific report of the wine crop this year in Spain leads to conclusions quite different from those which might be drawn from the general report.

Many phases have been observed this year in the district of Jerez de la Frontera, which, from the universal celebrity of its wine, stands one of the first on the vinicular list. Although prior to the vintage the vineyards gave most encouraging prospects as regarded the quantity and quality of the fruit, the excessive heat of August and of early September and the lack of customary rain caused the vintage to result differently from what had been anticipated. The fruit was less than had been looked for, and the deficiency in the juice, as well as in saccharine matter, gives reason to fear that only a medium quality of must will be the general result. About 20 per cent. more grapes has been required this year than last to produce a butt of must. I will not now, however, enter into the details of these important facts, as I have already done so in my official report to the department.

Diverging from the subject of vintage, I may observe that this year's olive crop in our district continues to animate the hopes of the growers. It shows not only good quality and quantity of the kind used for pickling, but also presents that for pressing under excellent conditions of ripening.

I shall be happy if these remarks may be of interest to your readers.

J. AGUSTO HALL,
U. S. Consular Agent.

The Belgian Exhibition.

ANTWERP, November 7, 1886.

Editor American Mail and Export Journal:

I BEG herewith to inform you that the Royal Belgian Society of Agriculture has decided to hold at Nivelles, Belgium, on the 25th and 26th June, 1887, under the auspices of the government, a national competition of live stock and also a universal exhibition of agricultural machinery.

All agricultural machines and tools, of whatever production, will be admitted.

Prizes in silver to the amount of 25,000 frs., and medals specified in the programme will be awarded to the exhibitors.

Machinery and tools imported from foreign countries and which shall be re-exported will be admitted free of duty.

This will be a splendid occasion to introduce American machines in Belgium.

If American manufacturers shall be disposed to send their products, I am quite at their disposal to do all that is possible to secure business for them.

JAC. S. EISENMANN.

The Cullman (Ala.) Progress says that it has recently seen a sample of the fine asphaltum found on the place of Col. Chas. Cole, in Morgan County. It seems by the report of the assayists at Washington and Birmingham that this secretion is the finest of the kind in the world. This deposit is said to be a marvel of nature, and from the force with which it comes to the surface there must be an unlimited supply.

Gold and Silver on the Comstock.

THE ore from the great Comstock lode in Nevada is generally classed as silver, and few people are aware how large a percentage of gold is produced. From the earliest period, however, the proportion of gold has been large—in fact, pretty nearly one-half. Baron Von Richtofens' estimate of the yield of the Comstock to the close of 1865 was \$48,000,000, of which \$15,250,000 was gold and \$32,750,000 silver, the percentage of gold being 31.77 and silver 68.23. In the Belcher Mine from January 1, 1871, to December 31, 1873, when the mine produced \$15,529,427, the gold yield was \$8,813,196 and silver \$6,716,231, the gold greatly exceeding the other precious metal. Between May 1, 1864, and May 1, 1877, when Crown Point was paying, it yielded \$23,929,469, of which \$10,166,656 was gold and \$13,762,812 silver. At a certain period when the Gold Hill group, Crown Point, Belcher, Yellow Jacket, Imperial and Empire yielded \$45,903,149, the gold was \$47.25 and silver \$52.75 in the total. At a period when the Savage, Gould and Curry, Hale and Norcross and Chollar-Potosi yielded in the aggregate \$30,278,046, the gold proportion was \$35.93 and silver \$64.07 in the hundred dollars.

In the Bonanza group, the Consolidated Virginia had produced up to the end of 1880 \$64,970,777.95, of which the gold was \$29,075,338.75 and silver \$35,895,438.98. California, to same period, produced \$46,736,831.44, of which the gold was \$23,308,012.69 and silver \$23,428,818.75. Without going into close details of total production of these mines (now one incorporation), it is sufficient to say that the proportion of gold still holds about the same. The total yield for the fiscal month of November for Consolidated California and Virginia was \$387,824, the shipments having been as follows:

November 6.....	\$54,069
November 13.....	38,786
November 20.....	46,821
November 27.....	101,633
November 30.....	34,492
December 4.....	61,758
December 6.....	50,265

Total.....\$387,824
Total for October.....206,742

The November bullion shows a little over 40 per cent. in gold. The proportions are as follows:

Gold.....	\$168,788
Silver.....	219,036

Total.....\$387,824

The October bullion was also over 40 per cent. gold. The ore report for the week ending on the 4th inst. shows that 1,066 tons were sent to the Morgan Mill and 1,848 tons to the Eureka Mill, the assay value in the batteries being \$40.03 per ton. On ore assaying \$40 per ton there is a royalty to the Sutro Tunnel Company of \$1 per ton. This royalty is \$2 per ton when the assay runs over \$40 per ton. The last four weekly ore reports are as follows:

	Tons.	Assay.
November 13.....	2,736	\$36.67
November 20.....	2,805	44.29
November 27.....	2,799	42.17
December 4.....	2,914	40.03

The census officials compute the total yield of the Comstock from its discovery to December 31, 1880, as \$240,670,145.92. Of this the gold aggregated \$102,371,988.06 and silver \$138,298,157.86. In each \$100, therefore, there was \$42.54 in gold and \$57.46 in silver. From these statements it will be seen that there is almost as much gold as silver produced from the mines on the Comstock lode.—Mining Press.

New Process of Welding Steel.

E. D. WASSELL, of Pittsburg, has invented a new process of welding steel, by which steel bars of any content of carbon can be piled and welded together. He has demonstrated this by making a homogeneous weld of a pile made of bars containing 65 points of carbon. The process is not applicable to bars alone, but any miscellaneous steel scraps may be put up in fagot form and welded in the same manner by the rolling process. Another feature of this method is that the carbon can be reduced to any point desired; that is to say, steel of 65 points can be reduced to 10 points in carbon while in the solid form without remelting. The process will cover the working of old rails and old steel scrap. The great usefulness of the invention consists in the fact that piles can be welded from which plates can be made as large as 10 by 4 feet, and thus, it is claimed, the method will cover the whole agricultural field and like branches of the steel industry.

The American Mail & Export Journal.

Publication Office : 126 and 128 Duane St., New York, U. S. A.

Cable Address, Catchow, New York.

NEW YORK, DECEMBER, 1886.

A CORRESPONDENT directs attention to the Agricultural Exhibition to be held in Belgium next year. This will be international in its character so far as it relates to agricultural machinery. The opportunity for bringing American machines into competition with those of foreign construction and for extending their sale in Europe should not be ignored.

VERY practical methods have been adopted by the British Foreign Office for acquainting English manufacturers with the character of agricultural tools used in other countries. Samples of instruments in common use in China have been forwarded to the Foreign Office, and these have been put on exhibition in Sheffield and Birmingham. It is easy to see how information as to the needs of any country not provided with the best facilities for manufacture can be utilized to advantage. Our consuls have stirred up the representatives of other countries, and it is now their duty to see that their competitors do not surpass the instructors.

A PERMANENT exhibition of manufactured products has been opened at Toulouse, France. This is neither local nor national in character, but its privileges can be taken advantage of by the people of other countries. Consul Mason is of the opinion that this affords a most promising opportunity and remarks: "It is conceded by those best informed on the subject that the general superiority of American manufactures is sufficient to insure their success against foreign competition in any market where they can be adequately exhibited and their superior qualities demonstrated and explained." Assurance is given that the management of this exhibition is in responsible hands, and it seems to us that the opportunity thus afforded is one which our producers ought to investigate.

SOME very important changes are projected in the appropriations for the diplomatic and consular service, and for the payment of representatives of this country abroad. The increase for the diplomatic service, as fixed in the bill now pending, is \$74,000, and for the consular service \$288,000. It is proposed to substitute fixed salaries for fees and to advance the pay of officers who are now insufficiently remunerated. There is no question that it will be only a proper measure of justice to increase the pay of many of our diplomatic and consular representatives, and the greatest difficulty to be experienced in making the changes suggested is that of accurately gauging the value and importance of the services rendered. It is scarcely possible for Congress to determine this without definite information, and in the proposed bill the Foreign Affairs Committee has been largely dependent upon the suggestions of the Secretary of State. We think that legislation can scarcely err in providing for an increase of salaries in this connection, but reductions of pay and the extent to which they shall be carried ought not to be matters of hasty and inconsiderate action.

THE threatened disturbance of the peace of Europe has not occurred and the rumors of war are quiet. The calm which has so suddenly fallen over the political waters of the Old World may be only the precursor of a more violent storm. There is no question that a great deal of preparation is going on. The activity manifest in the French arsenals and manufacturing of munitions of war seems to have given Germany an

uneasy qualm, and a movement looking to the further protection of Alsace and Lorraine has been going on. Russia has not abated her energetic preparations, whether these may be intended to facilitate conquest by arms or by the pursuits of commerce. Little has been said of late about the Russian railway enterprises, but these are being pushed with vigor and without regard to cost. The construction of works necessary to complete the harbors of Batoum and Novorossik on the Black Sea is being carried on with great activity, the works at Batoum now nearing completion. An important steel works and plant for the production of marine engines and for ship-building is to be founded at Novorossik, and a large gun factory is said to be projected at Nicolaieff under a concession from the Russian Government. Thus war and commercial extension are linked together in Russia's plans, which seem to be founded on the principle that subjugation must precede the extension of the arts of peace. The conflict is only postponed. It can scarcely be "off" for good.

THE British Government is trying to institute improvement in the mail service between the United Kingdom and the United States. This is said to meet with considerable opposition, which has led to suggestions that the subsidy for carrying the mails shall be withdrawn and that the service shall be entirely a matter of competition. The *London Chamber of Commerce Journal*, commenting on this, remarks:

This service does not present the imperial considerations which are involved in our communications with the East. Steamers to Canada and the States do not traverse the waters or the frontiers of other countries, nor is Canada exposed in the same way as India and Indo-China to aggression from neighboring states. There is not, therefore, the same necessity for conveying mails in our vessels, or in organizing those vessels as possible additions to the navy, as is the case on the other side of the Suez Canal. Then also the steam traffic across the Atlantic has assumed proportions both of completeness, competition, price and efficiency, very different to that existing throughout the *itinéraires* of the Peninsular and Oriental Steamship Company, which is practically without an English competitor. The Atlantic mail route is so frequented by well-organized lines that it has become like an omnibus road. There is no necessity now for government assistance to the steamship fleets which navigate the North Atlantic, and were a subsidy continued to these it would almost amount to state favoritism. The American Government has succeeded in proving that mails can be efficiently carried by these very lines without subsidy. It would, therefore, be willful squandering of public money to pay rates which are proved, by the acceptance of lower contracts by some of the quickest vessels, to be unnecessarily high.

The opposition to the rapid mail service via Southampton is surely singularly inopportune. Not only is this service proved to be considerably more expeditious than that via Liverpool and Queenstown, but is also a considerable boon to merchants in London and the South of England, as well as to those of Lancashire and Yorkshire. From the point of view of competition this service cannot but be productive of good, and the strictures as to the foreign nationality of the line in question are surely beside the question. If a foreign line of steamers gives us the cheapest and the most rapid mail service, surely it is the duty of the Post Office to employ that service, for its economy and gain of time, irrespective of nationality. If the question of nationality is to be raised, let the national lines turn the tables by instituting a better service.

This is frank, but scarcely what we expected from an English source. If there is anything to which Englishmen have doggedly maintained their claim, and which they have sought to perpetuate, it is their supremacy on the sea. For this they have been willing to pay roundly, and the proposition to admit competition and to help supply the means for conducting it, strikes us as something novel.

IN speaking of the recent session of the German Colonial Congress in Berlin, Consul Goodwin says: "It appears from papers read at the congress by German explorers and others directly interested in these colonization schemes that Germany is now 'cock of the walk' over some 375,000 square miles of territory in East and West Africa and the South Sea. These lands have not been purchased or secured by treaty, but have been 'appropriated,' a very simple process of securing additional territory, long in vogue among the civilized nations of Europe, but only until quite recently adopted by Germany. It is admitted that the new pos-

sessions in West and Southwest Africa are of little present practical value and offer no inducements to immigrants, but it is claimed that in East Africa and New Guinea Germany has secured valuable acquisitions—sections of country whose climate is unsurpassed for healthfulness, and whose natural resources are rich, varied and abundant." It has not been Germany's fault that she has hitherto been dilatory in the appropriation of far-lying countries, or in the acquirement of domain from savages practically unable to resist the implements of European warfare. Until of late years she has not had a consolidated government or the means of prosecuting her conquests widely abroad; but the past record shows that her knights and princes have not been slow to appropriate the territory and whatever other possessions of their immediate neighbors they were able to command by the exercise of force. Germany's conquests in Europe are limited, for the present, at least, and she must look further.

BUT this extension of German empire into Africa does not seem to be altogether satisfactory to the German commercial mind. Colonies must take time to grow, and the untutored African will require years to become habituated to wurst, pretzels and bier and the many cheap imitations of goods known to civilized life. Trade in this direction will progress, but its development is slow, too slow, it seems, for those who establish connections in ascertained markets. One of the Leipsic commercial journals publishes a communication which expresses fear of American competition in Mexico, and which serves to show that the German hold upon that country is weakening. That this is so is declared to be due to "Yankee" energy, and the effort is made to convey the idea that this energy is to be expended in the acquisition of territory as well as commerce. Our German friend need entertain no such idea. He is an alarmist who tries to excite prejudice by sounding the alarm. The sentiment of the people of this country is in opposition to the further southward extension of territory and it is the general wish to remain at peace and in amity with our sister republic. The various new inventions and improvements to be found "on every hand" in Mexico are credited by this writer to the Yankees. He asserts that the French interest has been driven away and much English and German capital likewise, while "the Yankees with their money and enterprise have pushed themselves into the places once filled by Englishmen, Frenchmen and Germans." American merchants and manufacturers should take encouragement from such admissions.

CHILI AND THE CONVERSION OF HER DEBT.

IN October the Chilean Government made a contract with the banking-house of N. M. Rothschild & Sons, London, for the conversion of the loans of 1858, 1867, 1870, 1873 and 1875 into new 4½ per cent. bonds to the amount of £6,200,000, which were placed on the market at 98½. Beginning with 1887, a sinking-fund is to be provided for the extinction of the debts at the rate of ½ per cent. per annum, and it is further stipulated that whenever the bonds shall be obtainable below par in the future the government may buy and cancel them, while drawings are to take place whenever they are at or above par. This measure is most important, because it proves that Chilean credit abroad is well established and that any steps which the government may take toward the resumption of specie payments will be attended with success so far as the placing of a loan abroad is concerned, on terms as favorable, perhaps even better, than those of the Rothschild conversion.

Since peace with Peru and Bolivia was signed, Chili has been divided into twenty provinces, embracing sixty-eight departments, without counting the three territories of Magallanes,

Angol and Antofagasta. The area of Chili and dependencies is now 675,993 square kilometres. The census of November 26, 1885, gave the population as 2,439,537, including 33,000 foreigners.

On December 31, 1885, the foreign debt amounted to \$37,733,500, and the home debt to \$49,920,237, making a total indebtedness of \$87,653,737, in which there are included \$26,687,916 of paper money in circulation. Against this there were \$10,800,000 in cash in the Treasury on December 31, 1885. The internal debt bears interest, and a sinking-fund provides for its gradual extinguishment. Originally there were \$28,000,000 of paper money, but it has been gradually withdrawn from circulation at the rate of \$1,600,000 per annum, so that in June last only \$24,000,000 were outstanding. The revenue in 1885 was \$36,000,000, the budget estimate of expenditure having been \$37,200,000, the actual outlay not exceeding \$34,000,000, so that there was a surplus for the year of \$2,000,000. The budget estimates, it should be mentioned, comprise the outlay for railway building and other public works. For 1887 the outlay is estimated at \$32,000,000, and the income at \$35,000,000.

With such prosperous finances and good credit in Europe, nothing would indeed be easier than to cancel the objectionable paper currency by means of funds obtained through a fresh loan, but the government prefers not to act hastily in this matter, fearing the sudden disorganization of the monetary machinery at home and the consequent decline in values of exportable commodities now paid for and quoted in paper. On the other hand, the resumption of specie payments would put a stop to exchange fluctuations. It is only to be hoped that, whenever Chili resolves to do away with paper, it may adopt the gold standard instead of the silver standard it has hitherto had, for the reason that exchange will fluctuate as long as silver is retained as a standard.

There were in operation at the close of 1885, 835 miles of private and 597 miles of government railroads, in all 1,432 miles, to which will be added 775 miles of state lines now building and five other lines for which Congress has just voted the concessions. The government lines in operation cost the country \$42,107,934, the net earnings in 1885 being \$2,858,758, against \$2,553,373 in 1884. The government has also in operation 6,502 miles of telegraph wire, with 126 offices. Early in 1885 there were 411 post-offices; the amount of mail items forwarded in 1884 was 29,865,833.

The exports of copper amounted to 37,000 tons in 1885, against 41,780 in 1884; 41,229 in 1883, and 43,129 in 1882. Following is a statement of the nitrate of soda exports during nine months for three years:

	1884.	1885.	1886.
To Northern Europe..... quintals.	7,294,781	5,393,924	4,269,416
Mediterranean.....	157,335	41,930	112,712
United States on the Atlantic.....	1,125,675	770,096	1,134,017
" " Pacific.....	41,573	68,737	237,369
Totals.....	8,619,364	6,274,689	5,753,514

The exports of nitrate decreased in consequence of a purposely restricted output. The wheat crop was exceptionally abundant in 1885. On October 15 last it was depressed at \$3.75 the 166 pounds in bulk, free on board, for the lack of an export demand. There were imported in 1885 only \$41,218,725 worth of goods, against \$52,886,846 the previous year, the falling off being due to the decreased imports of railroad material last year. Following is a statement of the

EXPORT MOVEMENT.

	1884.	1885.
Products of the mines.....	\$46,434,284	\$42,043,404
Agricultural products.....	7,824,262	7,961,247
Manufactures.....	222,120	80,797
Sundry articles.....	178,960	64,098
Totals.....	\$54,659,626	\$50,140,546
Decrease.....		\$4,519,080

The diminished value of the exports was brought about by

the fall in prices. Chili's trade with the United States is indicated in the subjoined figures :

	Fiscal Year.	
	1886.	1885.
Imports into the United States from Chili.....	\$1,182,845	\$604,525
Exports from the United States to Chili.....	1,973,548	2,192,672

The Chilean merchant marine consisted in 1885 of 35 steamers, 6 ships, 86 barks, 6 brigs, 8 schooner-brigs, 9 sloops, and 16 cutters, of a total tonnage of 72,614. The Chilean navy, already the most powerful of any among the South American republics, is to be further augmented; the government has ordered another formidable man-of-war according to the designs of Sir E. J. Reed. It is to be an armored cruiser of 4,500 tons, with a speed of nineteen miles. The armament will consist of two 25-ton guns, one 14-ton, two 6-inch, four 6-pounders, eight mitrailleuses and 8 tubes for firing Whitehead torpedoes. The cost of the vessel, according to the designs which were approved by the late Admiral Lynch and Capt. J. J. Latorre, is from \$1,200,000 to \$1,500,000.

Chili now holds an enviable position among the nations of the world and she is assiduously working to improve and fortify it.

LATE DEVELOPMENTS IN QUEENSLAND.

IN November the Colonial Government of Queensland sent a cable message to its general agent in London, warning investors in mining shares against certain gold-mining companies about to be founded in the colony. As it is not customary for governments to interfere in the matter of private enterprises, the dispatch caused a good deal of surprise, depressed, for the time being, Queensland mining shares in London, and led to much comment.

The result of gold mining in the colony has been as under :

TOTAL PRODUCTION.			
1885.....	ounces. 310,941	1886.....	ounces. 267,136
1884.....	307,804	1879.....	288,556
1883.....	212,783	1878.....	310,247
1882.....	224,893	Up to 1878	2,646,916
1881.....	270,945		
Total.....			4,840,221
GOLD FIELDS.			
		1885.	
Palmer.....	ounces. 12,953		1,256,404
Ravenswood.....	17,601		307,780
Charters Towers.....	135,650		1,316,221
Hodgkinson and Mulgrave.....	5,828		211,103
Etheridge and Woolgar.....	28,348		294,914
Gympie.....	89,600		1,132,731
Calliope, Rockhampton, &c.....	20,961		321,068
Totals.....	310,941		4,840,221

The yield of the Ravenswood, Etheridge and Woolgar, Calliope and Rockhampton fields has been tolerably steady of late years; that of Palmer, Hodgkinson and Mulgrave has decreased. The Gympie field is doing very well; the year 1885 was, however, not as productive as 1884, the latter turning out 112,051 ounces. Quite an increase has been noticeable latterly in the yield of the Charters Towers fields. The geological character of the Rockhampton gold field is peculiar; it was discovered in 1884, the gold being found in a frothy, porous sinter, so light that it floats in the water like pumice, and the fine gold is disseminated throughout the sinter, which is supposed to have been deposited by a thermal spring.

Queensland occupies the whole of the northeastern portion of Australia, and has an area of 668,497 square miles, or 427,838,080 acres. On June 30, 1885, the population was estimated at 318,606. Brisbane, the capital, has 50,000 inhabitants. Although the heat in summer is great, the climate during the greater part of the year is healthy and enjoyable. The European immigration for the year 1884 was 16,486, of whom 3,026 were introduced at the expense of the Queensland Government.

The public debt on December 31, 1884, was £16,419,850, the

revenue in 1884 was £2,566,358, exclusive of land orders, and the expenditure £2,532,045.

Of banks there are eight, with a hundred and twelve branches. The value of the coin and bullion is given as £1,263,219; deposits, £6,322,025; note circulation, £633,083. The Government Savings Bank returns the number of depositors as 33,067, the amount of deposits as £1,220,614.

The Crown Lands Act of 1884 has superseded all former crown lands acts, and is now the only statute which provides for the leasing or alienation of the crown lands of the colony. In the reserved portions grazing farms may be selected in proclaimed districts in areas of not more than 20,000, nor less than 2,560 acres, at a rent to be fixed by the Land Board, not, however, less than 3s. 4d. per acre per annum. Suitable agricultural areas will also be proclaimed, in which agricultural farms may be selected of not more than 1,280, nor less than 320, acres, but any person may apply for and select any smaller area that is comprised in one complete surveyed block. As for homesteads, of the 420,000,000 acres contained in the colony, the total granted in fee-simple up to the end of 1884 was 7,099,275 acres, for which £4,850,109 had been paid.

On December 31, 1884, the railways in Queensland showed 1,207 miles in operation, the revenue being £630,631. There were 746½ miles in course of construction.

There are 221 electric telegraph stations in the colony; the number of miles of line, 6,980, with 11,300 miles of wire. Number of messages in 1884, 1,122,544. The telephone is also much used; there are now 440 subscribers who use it in the capital.

Sugar growing is now becoming a very important industry. In 1884 there were 57,687 acres under cane, of which 29,930 acres were crushed, yielding a return of 33,361 tons of sugar, which may be roughly valued at £812,905.

In 1883 the quantity of land under arrowroot was 227 acres, which yielded 390,964 pounds, while in 1884 there were 352 acres, which produced 574,768 pounds, the estimated value of which was £11,304.

The number of horses in 1884 was 253,116; horned cattle, 4,266,172; sheep, 9,308,911, and pigs, 51,796. Export of wool in the same year, £1,889,504; hides and skins, £109,291; tallow, £76,019; horses, cattle and sheep, £572,010; salted and preserved meat, £69,092—together, £2,715,916.

As for the mineral resources of the colony, beside gold mining, an important discovery of tin was made during the year 1880 at Herberton, in the Cardwell district. The returns are very good, and a large and apparently permanent township has sprung up in the locality. It is estimated that about £1,165,576 worth of ore has been raised at that place. There are lead mines in operation at Ravenswood, the ore from which yields a good percentage of silver. Cinnabar, antimony, and manganese are also among the mineral products. The exports of gold and silver and metals for 1884 are given as follows: Antimony, £10,968; gold, £923,010; tin, £228,457; copper, £3,014; galena, £1,110; silver ore, £23,696; silver lead, £1,060—together, £1,191,315.

Near St. Lawrence and on the adjacent islands marble of fine grain is found. Excellent coal has been discovered in some localities and new finds are being frequently made. There were 129,980 tons of this mineral raised during 1884, valued at £54,160. At Burrum, in the Maryborough district, splendid coal has been discovered and a railway constructed to the spot, in order to bring the mineral to the port of Maryborough. Valuable timber grows in abundance, the trees which supply the hardwood, which is most in demand, being flooded gum, iron-bark, blackbut, turpentine, stringy-bark, spotted-gum, blood-wood, beech, yellow-wood and dark yellow-wood. The imports for the year 1884 were valued at £6,381,976.

The resources of Queensland are so varied and valuable that the colony has a most promising future even in the event of the gold mines proving less productive.

U. S. Ministers and Consuls.

Railways in China.

CONSUL SEYMOUR.

IT is announced that the Imperial consent has been granted for the construction of the experimental line of railway on the route by which the conquering Tartars entered China—a short line only, and in the Northwest.

Several wealthy and influential syndicates from the Western nations have already sought Chinese favor in regard to the contemplated railway enterprises in China.

China cannot much longer postpone the introduction of railways, which are needed for army transportation, since her frontier troubles demand quicker concentrations of military forces than can be secured by former facilities; but with the construction and operation of railways the Chinese fear there will be increase of foreigners, which is a serious objection with the Chinese, and may be regarded as second only to their objection against molesting the tombs of past generations.

In the meantime the official magnates of China are withholding the grand prizes in the railway lottery or scheme, and flourishing them out of the reach of supplicating foreigners, or foreign supplicants, with an evident enjoyment of something akin to the sport of youth, who compel certain pets to strike attitudes, "speak louder" and "roll over" before the tidbits are dispensed to the beseeching and obsequious animals.

One of the strong European competitors for these Chinese prizes is credited with having already distanced all rivals, by throwing overboard missionaries and native converts to Christianity, and by consenting to the permanent obstruction of navigable rivers for the exclusion of foreign ships from treaty ports; but before winning the coveted prizes possibly a further concession may have to be made to lubricate the internal machinery.

Wools of the Argentine Republic.

CONSUL BAKER.

THE wool season of 1885-6, which is just now closing in the Argentine Republic, exhibits a large deficit on the returns of the previous year.

The total clip of 1884-5 amounted to 318,860 bales, all of which, except 5,713 bales, had gone forward by the 15th of July, while the shipments of 1885-6 up to the 15th of July reach only to 284,186. If we make an allowance of 5,000 bales as the balance of the latter clip which remains to be shipped—a figure which is regarded as rather over the amount—it will be seen that the total clip shows a deficit of about 30,000 bales. The deficit in reality, however, is much larger than this, as every year heretofore there has been an average balance of 20,000 bales carried from one clip to the next, while this season there is no stock whatever on hand; so that the actual deficit is upward of 50,000 bales, equal to upward of 30,000,000 pounds.

In regard to the approaching wool clip (1886-7) the prospect is still more unpromising. It is thought that there will be fully 75,000 bales less than the figures of 1884-5. The reasons for this opinion are based on the fact that the winter, which is just now closing in the province of Buenos Ayres, the principal seat of the pastoral industry in the Argentine Republic, has been the severest on the cattle and sheep which has occurred in many years. The rains of the first part of the season, causing floods over an unusually large portion of the province, and the heavy frosts and freezing which have occurred since, have made terrible havoc among the flocks and herds. The losses from these causes are not confined to one locality, but are general.

But the floods and the frosts are not the only troubles which the sheep farmers are just now contending against. While these have been doing the work of destruction, a very singular and fatal disease is now also devastating the flocks. The nature of the malady is not understood, but it seems to be the result of worms in the throat and lungs, and it is said to be fatal to every animal it attacks. Some flocks, which safely escaped the floods, have been more than decimated by this singular disease, and its ravages are still going on.

Besides this, the foot-rot on nearly all the inside "camps" is unusually prevalent, in some cases whole flocks being scarcely able to walk.

And the scab, which is now spreading all over the country and which, in the absence of any scab law, attacks even the best cared-for flocks, assists, with the other causes I have mentioned, to make the sheep and wool interests of the Argentine Republic in a decidedly unsatisfactory condition.

For the reasons here given the deficit in the approaching wool clip of the Argentine Republic, it is predicted, will be upward of 75,000 bales, or about 45,000,000 pounds.

The Porcelain Works of Limoges.

CONSUL IRISH.

IN 1765 there was discovered at St. Triéux, a town of over seven thousand inhabitants, thirteen miles south of Limoges, a large deposit of porcelain earth, and extensive quarries of this material were opened in the granite rocks. Kaolin is the result of the decomposition of the feldspar, from which it is separated by washing, and is the porcelain earth properly speaking; and petuntze or white unadulterated feldspar is used for producing the glazing and for the manufacture, combined with the kaolin, of the more translucent varieties of china.

About two thousand persons are employed in and about Limoges in the manufacture of the porcelain, and Sèvres is also supplied from the same quarries.

The kaolin is ground in mills specially prepared for the purpose and is thus transformed into a floury paste; which is called *pâte à porcelaine*. This substance, after having been clarified, forms a white mass of a consistency which can be compared to bread taken from the kneading trough before baking. Workmen, according to their several specialties, employ this *pâte* to make not only all the various articles of china for a table service, but into many and beautiful forms of art and articles of luxury. Not only is much skill evinced in the process of turning, but great pains are taken in burning in the kilns, which in some instances is also repeated.

A manufacturer of porcelain who possesses but a single kiln occupies a superficial area of about 500 square yards, employing 60 workmen. He burns probably 65 kilns per year, at a value of about 2,500 francs each, thus producing about 130,000 francs' worth of porcelain, or nearly \$26,000.

The workmen are divided into many different classes for the process of the business, such as *batteurs de pâte*, modelers, mill-feeders, molders, turners, retouchers, enamellers, trimmers, polishers, *useurs de grain*, glaziers, kiln-burners, mixers, storemen and packers.

There are no royalties or patents for the manufacture of porcelain. Any person can engage in the business who has capital and the necessary knowledge for it.

Three manufacturers have provided themselves for one-half of their work with patented machines of Mr. Faure, engineer, for turning deep dishes, plates and saucers. This system of machines bids fair to be adopted by all the principal manufacturers.

Mr. Faure not long ago received an order for them for the royal manufactories of Portugal. They tend to considerably abridge the work, and can be run either by steam-power or water. The three manufacturers who use the machines of Mr. Faure employ steam-engines of 50 horse-power, at a cost of .014 cent per horse per hour.

The wages of the workmen vary according to the kind of work and habit of each, some working by the day and others by the piece, the result being according to their application. An average obtains, however, of about 4 francs per day (77½ cents).

The price of labor diminished within two years past, as prior to 1883 a day's work amounted to about 5 francs. This decrease of wages arises mainly from foreign competition, prices of goods being lowered to retain patrons, and the profits also being diminished.

The work-day is twelve hours, with intervals in all of two and one-half hours for meals and rest.

The food of the laborers is generally as follows: At 8:30 A. M. soup, with vegetables and bacon; at twelve M., dinner, composed generally of beef, veal, salt pork, or mutton, with a plate of vegetables, potatoes, or beans, little of fish; for drink, about a quart of wine, coffee with sugar and brandy; at eight P. M., after work is over, soup, with vegetables and bacon, cheese and fruit, according to the season. The maximum of cost for this nourishment is about 3 francs (57.9 cents) per day.

The clothing for some years past has been better than formerly, and workmen are clothed as suitably as those at Paris, the outfit compris-

ing the usual varieties of garments and amounting annually to about 200 francs (\$38.60).

The rental for a family of husband, wife and one or two children costs about 250 francs (\$48.25) per year, usually in a populous quarter, but not in the centre of the city. Usually the wife is also engaged in employment to assist in defraying the expenses of the household. A good many are occupied in the manufactories of porcelain at more difficult hand-work than that of the men, earning from 1½ to 2 francs a day. It will be seen that care and economy are necessary to make the ends of the year meet.

The best estimate of the cost of labor is to the effect that the hand-work represents about one-half of the price or value of the porcelain manufactured.

In Limoges only the best kinds of porcelain are manufactured. Very fine decorations are made upon the white porcelains, which augment the price a considerable sum. The decorators form a numerous body, and women in great numbers are employed thus in the workshops.

This artistic work gives to the workers of both sexes a salary somewhat higher than in the first fabrication. Notwithstanding the commercial crisis and the foreign competition, the decorated porcelains of Limoges are, and will be for a long time, sought for by buyers anxious to obtain superior qualities and of the best taste.

Commercial Interests of China.

CONSUL SEYMOUR.

I SUPPLY herewith some items of commercial information from this consular district, which embraces the two southern provinces of Quangtung and Quangsí, in the Empire of China, where no data, records, statistics or reports are to be found showing the nature and magnitude of the commerce of nearly thirty millions of inhabitants, who are remarkable for their industry, and possess productive soil and abundant facilities for domestic and foreign commerce.

The province of Quangtung has a coast line of about one thousand miles and numerous waterways, which are navigable for hundreds of miles, and thus Canton is a favored trade centre.

The only records that are kept of the commerce of this important port, or of other ports in the Chinese Empire, are those of the Imperial Maritime Customs of China, which is probably the most perfectly organized and best conducted civil service in the world; but as it only looks after the imports and exports by foreign ships, and as there is no record kept anywhere that shows the imports and exports by native craft or junks, the commercial statistics of Chinese ports are incomplete, and reveal only a portion of the commerce between the various ports of China, or between China and other countries.

Besides the ordinary export duty and import duty at the custom-houses of both systems of collecting revenue—the Imperial Maritime system, under management of foreign officials, and the “native” system, which “farms out” the various revenue districts to Chinese contractors—there were imposed special taxes, or “likin” dues, on many commodities, which were not as easily evaded at the imperial or foreign custom-houses as at the native contractors’ collecting offices, for the junks sought routes through creeks which could not always be carefully guarded. Merchants have verified to me the surprising statement of the Customs Trade Report, which says:

Many articles which would otherwise have been purchased at Canton and sent through this office to Hong Kong for transshipment abroad, have, during the past year, been bought, in the first instance, at Hong Kong, or, if bought here, have been settled for delivery in Hong Kong, sellers in some cases—*e. g.*, common teas—even finding it cheaper to ship the goods by junk to Hong Kong, and to store them there for a week or ten days pending the departure of the carrying vessel, than to pay both tariff duty and likin tax. To this fact is attributable, in part, the diminished export shown in our statistics of cassia, preserves, matting and fire-crackers.

A junk strike is now in full force and operation to resist some new demands upon the junk traffic; and without the slightest appearance of any excitement or turmoil, the fleets of junks in the Canton, Hong Kong and Macao triangle quietly suspend business and “tie up.”

While this double or duplex plan of collecting revenue is in operation, viz., by employing foreigners to collect duty on merchandise imported and exported by foreign vessels, and by selling out to Chinese contractors the collection districts for merchandise imported and exported by native junks, the anti-foreign viceroy of these two provinces has adopted a policy which practically bars out foreign ships of large tonnage from approaching nearer to Canton than Whampoa anchor-

age, eleven miles below Canton. This is being done by destroying the southern or deep-water ship-channel between Canton and the sea, and leaving open only the shallow and narrow junk-channel, which, at the “Salt Flats,” a few miles below Canton, has only six feet of water at low tide, and only about eleven and a half feet at high tide.

In a time of peace, when other nations are expending millions of dollars to improve navigation of harbors and rivers for commerce, the Chinese authorities at Canton have recently thrown hundreds of junk-loads of stone and driven piles to hold those deposits of stone in place to obstruct and destroy the ship-channel of the river, and neither consular nor diplomatic remonstrance has yet been able to stop what is clearly forbidden by international law and comity, and prejudicial to the commercial interests of foreign nations and detrimental to the interests of the most important port of Southern China.

In the midst of such conditions and influences, commerce seems to be cast away from consideration in the apparent effort to exclude foreigners from participation in its benefits at Canton.

Not only has the southern or deep-water ship-channel between Canton and the sea been closed by obstructions since the summer of 1884 (soon after hostilities commenced between France and China), and those obstructions extensively increased during July, 1886, but the northern or narrower and more shallow junk-channel has become extremely difficult to navigate by foreign steamships and vessels of lighter draught, in consequence of large fleets of salt-junks being allowed to rendezvous and anchor at the Salt Flats, a few miles below Canton, and obstruct the fair-way with chains and ropes across the channel to such an extent as to endanger foreign steamships, which are sometimes compelled to maintain considerable speed for steerage when going with the wind, current and tide.

The United States steamer Alert was thus jeopardized and seriously incommoded while entering and leaving the port of Canton, on March 20 and April 3, 1886, when in charge of Chinese licensed pilots.

If complaint is made to the Chinese authorities that the fair-way of the junk-channel is obstructed by the cables of junks crossing the channel, someone from the Salt Commissioner’s yamen is sent to investigate matters, and a few weeks later the viceroy informs the complaining consul that the salt-junks are in their proper places, and the consul is requested to notify commanders of steamships or foreign vessels to adopt less speed while passing through this crowded channel.

The foreign consuls at Canton have this summer been requested to give, but have deemed it their duty to withhold, their assent to proposed new harbor regulations, which impose many restrictions upon foreign ships that are not imposed on native vessels, and which make no provision for keeping the fair-way open in the only available channel, which is strictly a junk-channel.

One of those restrictions prohibits foreign ships from bringing kerosene nearer to Canton than one mile below Whampoa, or about twelve miles below Canton; while Chinese junks come into the harbor of Canton, opposite the city and shamen, and native cargo boats loaded with that commodity enter the canal between Canton and the “foreign settlement,” and go into the smaller canals of the city without any hindrance.

Thus, under the pretext of protecting Canton from destruction by a great conflagration of kerosene, the transportation of that article is exclusively monopolized by the native junks; while by this process the entire importations of kerosene are treated as being in Chinese hands, and therefore subject to any special or “likin” tax the Chinese authorities see fit to impose, or authorize to be imposed, when selling or “farming out” to Chinese contractors the native collection districts for duty and “likin,” or special taxes, not only between the seaboard or coast ports and Canton, but between Canton and the interior.

The importance of securing better arrangements for sending needed foreign commodities into the interior and into the two Southern provinces of Quangsí and Yunnan, from Canton and Pakhoi by well-established trade routes, cannot be fully appreciated; but if the system of transit passes for foreign articles of merchandise sent to the interior markets and places of consumption were fairly in operation, there would follow a largely increased demand for many kinds of imported merchandise; but such is not the case, as has been clearly demonstrated by negotiations during the present year between the

legations and the Imperial Government at Peking, and between the consuls and the viceroy of the provinces of Quangtung and Quangsai at Canton, the measures agreed to at Peking for better facilities in regard to interior traffic having been utterly ignored by the viceroy and other Chinese officials at Canton.

The viceroy insists upon his right to locate likin stations where he deems them desirable, and to change their locations from time to time as the operations or routes of traffic may demand, and declines to designate their localities or to state their numbers or the aggregate of likin taxes between any two given points, and thus defeats the arrangements agreed upon at Peking to facilitate traffic in foreign commodities between the sea coast and the interior, notwithstanding the legations sent out to the various consulates circular notices of what seemed a very desirable improvement on the system in actual operation, which prevents anyone from finding out what will be exacted on any trade route as likin tax or other special tax on foreign shipments to the interior.

In some of the other provinces of the Chinese Empire where the ruling authorities are less intensely anti-foreign in feeling and policy, lists of the likin stations and amounts of likin required at stations or routes between the treaty ports and specified points in the interior have been supplied and published, but there seems to be no means by which viceroys in their respective provinces are or can be compelled to abide by any agreement or plan adopted by the Tsung-li Yamen (foreign office) and legations at Peking.

Pressing Grapes and Making Wine in Catalonia.

CONSUL SCHEUCH.

THE value of wine in Catalonia being generally based on the deepness of the color, bruising by the feet is preferred (as strange as it may seem) to any wine-press, however perfect, for besides the advantage the first method has over the second, of more perfectly airing the must, foot-bruising breaks up more completely the outer skin of the grape in which the coloring matter is contained. The pressing is done either with bare feet (the men walking for hours and hours around in the small circle), which is preferable, as neither the seeds of the grape, nor the stems, which contain a great amount of tannin, are broken, or with hemp sandals especially made for the purpose.

If wooden fermenting-vats are used, the bruising is done in tubs from three to five feet wide and two feet high. When the pressing is finished the juice and stems are taken to the fermenting-vat, either by running them off from the press direct, when the press-tubs are located higher than the vat, or in dippers, &c. When the vats are of masonry, the pressing is done on a platform of loose boards on top of the vats, the must running into the vats through the cracks. The stems and seeds and skins are also let down into the vats by raising one of the boards, care being taken that they spread out uniformly on the bottom of the vats, for which purpose the boards are lifted successively one after another.

As stated above, foot-bruising is preferred to the use of any mechanical press. These are, however, known and also used, two kinds being manufactured in Barcelona, and many of English, German and Belgian make are offered for sale.

Must undergoes two fermentations, the rapid or tumultuous and the slow. The first takes place in the vats after coming from the press. In Catalonia these vats are generally made of wood, while in the rest of Spain, as I understand, earthen vats are commonly used. The wooden vats are easily set up, and cleaned without difficulty. They are filled to within eighteen inches of the top, thus avoiding the spilling of the wine, when in complete fermentation the "head" is formed. The size of these vats differs, being proportionate to the quantity of the crop, for if, as is desirable, the fermentation is to take place simultaneously in the entire liquid, the vat should be able to be filled in twenty-four hours.

In Catalonia the wines are more appreciated the drier they are; that is to say, the less unfermented sugar remains and the greater amount of coloring matter they contain. After the tumultuous fermentation the wine is decanted into casks, where it undergoes the slow fermentation. In many parts of Catalonia this decanting is still done with pails, whereby the wine often sours or loses aroma on account of coming in contact with the air too long. Pumps, siphons and sail-cloth hose are daily coming in more use. The slow fermentation in the casks,

which lasts six months, is the last process and the wine is fit for the market.

In the above description I have given preference to the methods of making wine by the smaller wine-growers and farmers, so characteristic of Catalonia.

Labor Cost of Spinning Cotton Yarn in England.

CONSUL SCHOENHOF.

THE fact is fairly well authenticated that, measured by the piece or pound price, American labor in cotton spinning and cotton manufacturing is fully as cheap as British labor, while its earnings are on an average 50 per cent higher.

In weaving, the same can be said to result from a more thorough investigation than I have been able to bestow upon this very important and vital subject from the premises already in hand.

To give an illustration: For 64 by 64 (64 picks to the inch) Fall River print cloth is now paid, after the advance of March 1, restoring the previous reduction of 10 per cent., 18 15 cents per cut of 45 yards. For the same count of cloth the price paid in Old England is, for 80 yards, 44 cents, or about one-third more than what is paid in New England.

I have brought samples of manufactured cloths over for comparison, and endeavored to get samples of like qualities from English manufacturers for like goods, with price quotations. I cannot, however, submit them yet, as it is a very difficult matter to obtain goods manufactured in different countries alike in count, width, weight, &c. The samples received, however, do not impeach the fact, so well known to the trade, that in the coarser and heavier counts, and especially so in drills, our prices, in many instances, are somewhat cheaper than the English. Both prices, English and American, are taken in a period of trade depression, and the following remarks of a gentleman who supplied me with samples of his manufactures express about the situation in England: "You may consider that the prices are very near cost, as trade is very bad in these goods. In some cases the price may be below cost."

Agricultural Implements of Catalonia.

CONSUL SCHEUCH.

THE state of advancement of agriculture in any region may be judged by the greater or less perfection with which work is done, dependent, in a great part, on the spirit of routine or progress in the use of implements and machines. Here, as elsewhere, one of the principal agricultural implements is the plow. The one universally used throughout Catalonia till within a very few years, and now quite common in some parts, is the primitive "rudder plow." The principal parts are the share or iron point that penetrates the ground, set into the share-holder by the other end. This holder, which is a stout piece of wood, carries two branches (*orjas*, wings), one on either side, which scatter and pile the earth turned up by the share. Finally, there is the rudder, to which the horses or oxen are yoked, and the handle, placed behind, to guide. Among modern plows most in use are those with one fixed share, divided pole, and a blade or root cutter in front in an oblique direction to the surface of the earth. Those most used, no doubt on account of being manufactured in Barcelona, although of foreign invention, as their names indicate, are "Howard's" and "Ransom's." In both kinds there is but a single plowshare, a blade for cutting roots, one or two wheels in front, two handles, and the entire frame made of iron. Some of the Ransom pattern have wooden frames.

To break up the lumps of earth the common rake is used. The most simple is composed of a piece of wood with a row of iron prongs or small blades inserted. Joined to this piece of wood, in T-shape, is a pole about five feet long, which serves as handle. Another style of rake still much used, although of very old date, is a rectangular frame with cross-pieces of wood, from which and from the sides of the frame project the prongs. Of late years modern rakes of the Howard and Ransom pattern are manufactured in Barcelona, and in use. Other implements employed are the ordinary spade, the mattock, the hoe, the scythe, the sickle, &c.

The introduction of agricultural machines and other costly apparatus in Catalonia will always be difficult, first, on account of the hilly lands, and, second, of the minute distribution of rural property.

Under the head of mechanical appliances could be put some of the

plows of modern type already mentioned, with the addition of some steam plows. Of mowing-machines only a very few of Wood's and Hornsby's are in use, also some of Ransom's pattern, made here. Of threshing-machines, I understand the Ransoms, made in Barcelona, are preferred to Marshall's and Fowler's, the reason, as given me, being that the former has an appliance which delivers the straw cut and stamped the same as it comes from under the hoofs of the horses on the ordinary threshing-floor.

French Mines.

CONSUL MASON.

ALL mines in France are held to be state property, although they are in no case worked by the government. The system in force is as follows: Any individual, or corporation, desirous of engaging in mining operations, must first obtain from the proprietor of the land permission to undertake "*travaux de recherche*," exploring operations, at the cost and risk of the applicant. If the results obtained by these preliminary tests are satisfactory, a formal application for a final concession is made to the Ministry of Public Works. After an inquest conducted by the civil authorities, and upon favorable advice reported by the government engineer, this "concession" is granted by the Minister of Public Works, and gives a perpetual tenure to the applicant, who can then work, sell, or transfer the mines, which are thenceforth his property.

Once in possession of his "concession" the grantee has entire command of the produce of the mines and is at liberty to conduct works as best adapted to his means or judgment, under the control of the government and the surveillance of a state engineer, whose business it is to observe the progress of the works and see that nothing is done contrary to the law, to the safety of the people employed in the mines, or to the lawful rights of the owners of other mines or the proprietors of the soil.

As above stated, the tenure is perpetual, and subject to no rent or royalty except a fixed annual fee of 10 centimes per hectare (a little less than 1 cent per acre) for the area included in the concession, and a royalty tax of 5 per cent. of the net profits. These, with an additional tax of 10 per cent. of the aggregate amount of the above fee and royalty, are paid to the French revenue. The owners of the soil are entitled to nothing excepting the rent of such parts of the surface as are required for the proper working of the mines, the nominal fee of 10 centimes per hectare if they see fit to claim it, and compensation for any damage occasioned on the surface, which is paid at double its actual value.

Needs of the Mexican Markets.

VICE-CONSUL WINSLOW.

AS I receive continually circulars and letters asking for information from manufacturers of machinery and tools, I would state that there is no demand here for machinery of any sort. In agriculture a few small iron plows, it is true, are used, and I believe that they are coming into more general use. The plow used by Mexicans is made out of a crooked fork of a tree, shod on the end with iron. Their hoes are very wide, heavy and clumsy. A light hoe would be useless where so many bushes and stumps are left after their mode of plowing.

No mowers, reapers, threshing-machines, or harrows are used or needed, as corn is the only kind of grain planted here.

Corn is always shelled by hand on an *olotero*, which is made by tying together a number of corn-cobs in a circular form. I think I could dispose of a number of cheap corn-shellers at profit, and would invite any maker of them to send me one for trial.

As the bread generally eaten here is the tortilla, made by boiling corn in lime water, and then grinding it on a granite stone (*el metate*), by means of another long stone (*la mano*), a hand-machine for reducing it to a pulp would be salable.

Carpenters', blacksmiths', and shoemakers' tools find a ready sale.

Washing-machines or wash-boards are not used. The washing is done by women, who squat down along the banks of the river with their dresses tucked up between their knees and scrub the clothes on flat stones, and afterward hang them out to dry on the bushes.

There are no windmills here, although they would be particularly useful for pumping water out of the river for irrigating purposes, as

the crops are generally lost from the drought; and if artesian wells were sunk they could be used for giving water to stock. In fact, neither agriculture nor stock-raising can be profitably carried on here without artesian wells and windmills. A few pumps could be sold here at present, especially pumps for cisterns. It would pay some enterprising person to come to Mexico and put down artesian wells and erect windmills, especially on the plains which extend south of the Sierra Madre.

When I speak of machinery I only refer to this consular district; in the interior of Mexico considerable machinery is being introduced of all kinds.

There is no demand in this consular district for mining machinery and implements, as the only mines here are of coal, and they are not worked at present for want of transportation for the coal. The nearest silver mines are at Cerralvo and Vallecillo, in Nuevo Leon, ninety miles distant. No electric machinery would sell here at present.

Cost of Direction in English Spinning Mills.

CONSUL SCHOENHOF.

AS a rule, in English spinning mills the share capital does not represent more than one-half of the capital employed. The other part is borrowed capital. The rate of interest at which capital can be borrowed being very low, the excess of profit over this low interest charge consequently accrues to dividend on the shares. The companies are co-operative organizations and the cost of management very moderate. Of the Oldham companies and their management, Mr. John Kidger, of Oldham, in a statement submitted to the Depression of Trade Commission, says:

With regard to the directors, they are a persevering body of men, and a glance at their avocation shows that nine-tenths of them have practically been brought up in the business of cotton spinning, and not a few are to-day engaged as private spinners.

It is firmly believed that Oldham companies have been beneficial to the trade of the country, because they came into existence at a time when it was of the utmost importance that the production of cotton goods should be as cheap as possible.

Private firms have not kept pace with the times, and the formation of Oldham companies stepped into the breach and took the lead, and up to now have not been displaced.

Moreover, the social condition of the people has been benefited thereby. It has taught them to save from their earnings, and to invest their small savings in the best manner possible. I know of a good many operatives who live in their own houses.

These companies were run under the best conditions imaginable during the past year, and yet they show so poor a result that more than two-thirds of them have on the average had a loss of nearly 3 per cent. on their share capital after the percentage for wear and tear of machinery, &c., had been written off, or, in other words, have neither earned dividends nor more than a small part of the interest on loans and mortgages.

Tariff of Colombia.

CONSUL VIFQUAIN.

THE system of customs taxation here is wholly specific, and the new tariff has fourteen different classes, varying from one cent to \$1.20 per kilogram (two pounds). In the main it is a more liberal tariff for importers than the one now in force.

One section of the new tariff enables Peru, Ecuador and Venezuela to enjoy reciprocity privileges with Colombia in all matters of trade. Also, agricultural machinery, so very much needed in this country for the development of the very richest of agricultural resources, is taken at the rate of 2½ cents per kilogram. Yet there are no manufactories of the kind in this land, and no land is in need of agricultural implements more than this, inasmuch as a crooked stick is often seen to take the place of a plow. I cannot but think that an argument before the commission that had charge of the tariff law, and well directed influence by the legations of nations that have so much at stake in the matter of agricultural machinery, like ours, for instance, might have had the effect of giving to this country the blessings of a low tariff for the implements that she is so much in need of.

Article 4 of the new law provides for an additional duty, not an "ad valorem," but an "ad per centum;" that is to say, \$1 worth of duties becomes \$1.25, as \$100 becomes \$125. The whole of this tax is for the national treasury, and the 25 per cent. additional has been put on to make up for the great expenditures of the last revolution. In addition to this there is another tax, but it goes into the treasuries of

the respective states, and is collected by the respective local authorities. This tax amounts to 15 per cent. additional to the customs tax, and is to all intents and purposes an indirect tax on imports. If the state of Bolivia, for instance, one of the nine of this Republic, consumes imports answering to the value of \$100,000, the persons using these imports pay 15 per cent. on their respective consumption. This tax has for object the redemption of \$100,000 paper currency issued by the state.

Imports of Foreign Commodities into China.

CONSUL SEYMOUR.

A SERIOUS obstacle to importations of foreign commodities into China is the present condition of the exchange, based on the silver currency, which has for the past two or three years undergone such depreciation in China and other Asiatic countries, including India and Japan, with intermediate and less important countries of the East, as to require four silver dollars here to equal three gold dollars in Europe or America.

Exports from China to Europe and America are somewhat stimulated or encouraged by the premium on gold or on drafts or bills of exchange on gold-paying countries against shipments to the European and American markets, as the purchasing power of silver in these silver-currency countries is as yet imperceptibly affected by the rates of exchange between China and foreign countries. With no desire to offer any comments on financial or monetary problems these facts are recorded as pertinent to commerce, and are worthy of consideration and study.

An interesting feature of the increasing disparity between gold and silver in China (and in other Asiatic countries) is the relation sustained or existing between lenders and borrowers of money, since the assets of banking corporations in the East, owned by European capitalists, whose capital has been transferred from Europe to Asia, have been shrinking, on the basis of gold, faster than interest accumulated. And, too, depositors in banks find that their 5 per cent. interest on fixed deposits for the past four years scarcely covers the depreciation in the value of the sum originally deposited if convertible or converted into gold in Europe or America. And, by the same causes, a debt incurred four years ago for 100 silver dollars, which was then the product of \$90 in gold in China, can now be cancelled by the payment of 100 silver dollars, which can be bought now for \$75 in gold or in European or American bills of exchange payable in gold. The surplus or difference of \$15 in gold, which will buy 20 silver dollars, pays four years' interest at 5 per cent., and the creditor finds his income a myth.

These complications are thus interfering with commercial operations and should be taken into consideration by Americans and Europeans who contemplate shipments to China.

Under the treaty of June, 1885, between China and France provision was made for the establishment of two trading marts on the southern frontier of China. One of those trading marts is to be behind Langson, and the other behind Laokai, and from and through these two frontier trading marts France contemplates diverting trade from the two southern provinces of Quangsi and Yunnan, which have been tributary to Quangtung province, and to Canton as the chief market and port, as well as financial centre of the south.

It should also be noted that the treaty, besides giving France the opportunity to tap the southern provinces of China, also permits and stipulates that their Chinese customs tariff shall be more favorable or lower than at the treaty ports of the coast. Whether France will succeed in diverting trade through Tonquin and away from Chinese routes time only can determine.

IRON INDUSTRY OF FRANCE.—France, like some other countries, finds the capacity of her iron works in excess of the home demand for their products. Several years ago Mr. de Freycinet proposed an extensive scheme for developing the railway and canal systems of this country to the high standard which has been attained in England and Belgium. The plan was adopted, and, in anticipation of a greatly increased demand for rails and machinery, new iron and steel works were projected at various points by stock companies, whose shares were negotiated in the Paris market. Want of funds eventually defeated the full realization of the scheme, and the increased manufacturing capacity became superfluous and unprofitable.—*Consul Mason.*

CONSULAR NOTES.

Manufacture of Faience at Bordeaux.

Consul Roosevelt, having endeavored to get some information concerning the manufacture of faience at a leading factory, was replied to by the manager as follows: "I do not know the size of our present building nor the space of ground covered by it. We have not kept an account of the outlay for repairs and enlargement of buildings, but have made them whenever necessary and as the exigencies demanded. I cannot state the exact amount of annual taxes paid by us upon land, buildings or machinery; do not wish to name the amount of insurance we carry, nor enter into the expenses of production or other expenses arising therefrom. I have no hesitancy in saying that we are perfectly satisfied if we receive 5 per cent. annually on our invested capital. At our factory we have 1,000 employees, men, women and boys; at our bottle and glass factory, 200 employees. We pay our employees from \$14.48 to \$57.90 per month, according to efficiency. The working hours are from seven to twelve A. M. and from one to six P. M. The average length of credit extended to our customers is ninety days. The usual rate of interest paid by responsible manufacturers in France for use of money is 5 per cent. We worked forty years to acquire a proficiency in our trade and to establish a successful business, and are indisposed to speak freely of the methods and rules regulating our business."

Ribbon Weaving in Switzerland.

In the factories the weaving is generally done on power-looms. In the country hand-looms are universally used. They are made by members of a special profession, called loom carpenters, and they are worth, when new, from \$90 to \$100. The manufacturer himself, who resides in Basle and employs many weavers, owns the looms, and deducts 3 per cent. as loom-rent at each payment of wages for weaving. The wages for weaving are generally based on a length of 14.40 metres, and are intended to enable a good workman to earn from \$3.50 to \$4.80 a week, according to skill and attention required for the production of a particular article. The country weaver is paid rather more for a given price than the factory employee, because the former must attend to the winding and spooling, and furnish his own fuel and light. The fancy ribbons and, of course, all the Jacquard articles are woven in the factories, where the constant presence of an overseer assures the uniform excellence of the work. The cheap goods and some of the better qualities of plain ribbons are exclusively manufactured on the country looms, it being impossible in Switzerland to make a profit on them otherwise, while in the United States, where hand-weaving is unknown, the production of the lower qualities is not attempted.—*Consul Gifford.*

Salt Mines of Cardona.

These famous mines, that form part of the pliocene sediments in the western part of the province of Barcelona, are situated at the bottom of a small valley through which runs a stream tributary to the River Cardona, at the foot and to the south of Castle Cardona, and cover a surface of 1,519,927 square yards, their greatest length being 5,577 feet, the width varying from 750 to 1,650 feet. The salt deposit may be divided into two masses, one apparently superposed upon the other, although in reality united. The deeper mass, which is the one that is worked, is at the lower part of the valley, and here the salt exists in a state of great purity, being perfectly white. The upper mass is not so white, as it is formed by belts of different colors, due to the presence of metallic oxides, carbonous matter, clay in thin layers, and even small crystals of iron pyrites. Many deep furrows and gullies are formed by the action of the meteoric waters between high and pointed peaks of strange aspect, and also caverns and hollows, called *bofars*, in the interior of the mass of salt, are owing to the same cause. Owing to the extraordinary richness and purity of the deposit the mines are worked in a manner that causes a great loss of the product. The working is done in the open air. Grades are formed and ditches dug out on these from thirty to forty yards long and eight to ten wide by means of pickaxes and bores, water being used to facilitate the operation. The amount of salt extracted yearly is insignificant to the possible yield, the actual yield not exceeding 50,000 cwts., which is consumed princi-

pally in Catalonia and Aragon. The salt is sold at the storehouse at Cardona at forty-five cents the hundredweight.—*Consul Scheuch.*

Iron Mines of Bilbao.

The number of iron mines actually denounced in the province is about 300, which are situated in the mining districts called Somorrostro, Galdames, Arcentales, Sopuerto, Regato, Abando, Ollargan, Galdacano and Guernica. The greater part of these mines have been known for centuries, but up to the year 1856 they were only worked for the smithies in Vizcaya, which used solely the class of mineral known as *vena dulce*, the consumption of which, up to that year, did not exceed 40,000 tons per year, the value of which delivered at the mine was 50 cents per ton.

The ores are classified as *vena*, *campanil*, *rubio* and *calon*, the yield of which in metallic iron may be calculated as 58, 52, 50 and 43 per cent., respectively. All these are free from phosphorus and sulphur, to which, no doubt, they owe their great acceptance in foreign markets. The *calon* ore is rarely quoted in this market, and is generally exported mixed with some of the other classes.

The greatest exportation of ore was in the year 1882, when 3,692,000 tons were shipped for foreign countries and 44,000 tons for Spain, or altogether 3,726,000 tons.

All the work of taking out the ore is open to the sky, as in a quarry, so that the work of extracting the mineral is reduced to clearing it from the vegetable earth and from the rocks and sand, and afterward, by great blasts of ten metres depth, to blow up enormous masses of mineral, sometimes of 2,000 tons, by dynamite, and then breaking up these large blocks to the ordinary small size by the use of common powder. The cost of the dynamite, powder and fuses is calculated to be about 8 cents per ton of mineral produced.

The total cost of a ton of clean mineral at the mouth of the mine varies from 50 to 60 cents.

In the extraction, cleaning and carrying the mineral about 8,000 workmen are engaged, who gain an average pay of 60 cents per day.

The government duties on mineral, payable by the proprietors of the mines, are 20 cents per hectare (about $2\frac{1}{2}$ acres), denounced annually, and 1 per cent. on the value of mineral delivered at the mouth of the mine, and those of the municipality of Bilbao are 25 cents per ton, payable when the ore is shipped.

The work of extraction is, at the present time, almost exclusively limited to the mines in the districts of Somorrostro, Galdames, Regato, Abando and Ollargan, which, from their proximity to the river and port of Bilbao, permit of the mineral being embarked with more economy than from the other districts.—*Consular Agent Urrasa.*

Opium Traffic at Canton.

Opium continues to be an important item of trade at Canton. Some estimate of the extent of the traffic in opium at and near Canton may be formed from the fact that the contract or franchise or monopoly of collecting the likin on crude and prepared opium in this province of Quangtung is farmed out or sold by the authorities to native contractors, who pay into the treasury of the province the sum of 850,000 taels (\$1,250,000) annually on a six years' contract, and the contractors bind themselves to defray all expenses for salaries, for steam cruisers and for preventive service generally, which amount to about \$350,000, amounting in all to about \$1,600,000 per annum, which is exclusive of duty on opium, and taking in only the likin tax of about 55 taels per picul of $133\frac{1}{3}$ pounds, or about 62 cents per pound for likin. As the likin contractors on opium are supposed to find profit in their monopoly, it must be derived from likin on an excess of 20,000 piculs (or 1,333 tons), whereas only one-third of that amount was reported at the four Chinese foreign custom-houses in Quangtung province during 1885.—*Consul Seymour.*

Chinese Manufactures.

Consul Seymour says that the Chinese throughout the empire seem to be increasing their manufactures. Especially is this noticeable in the steady increase of importations of raw cotton, cotton yarn and thread, which rose in 1885 to \$2,000,000 for raw cotton and \$11,806,818 for cotton yarn and thread, or about \$14,000,000 for raw cotton, yarn and thread, which were used in Chinese manufactures. Of the \$2,000,000 worth of raw cotton Canton received one-half.

Railways in North China.

It is reported that syndicates have offered to build railways here for a very small sum per mile, but the plain of Chihli, although of great extent, is in many places too low and too flat to admit in these places of railways being cheaply made. Not unfrequently the country is flooded and to a great extent covered by the heavy rain. Roads will therefore require to be raised considerably, and numerous openings for the water will be necessary. Again, a road from Peking to the south, say Hankow, when in close proximity to the mountains will require to be a raised road, with numerous openings for the water to escape when coming down in torrents from the mountains. A railway from Tien-Tsin or Peking to Hankow now presents no engineering difficulties. Even the great Huang-Ho, or Yellow River ("China's Sorrow"), may be crossed without difficulty in certain places where foreigners have crossed. No tunnels are required and few or no cuttings between Tien-Tsin and Hankow; but bridges in great numbers and some of considerable size will be required; the crossing of the waters will be cause of considerable expense. Water-courses, which in the dry seasons are only a few feet in width, show by the sand that the waters cover the land in many places to a considerable width during the rainy season.—*Consul Bromley.*

Trade of Bushire with the United States.

There is no direct commerce with the United States just now, and since my appointment I have not had occasion to authenticate invoices. I may, however, mention that some few years ago shipments of opium and carpets had taken place hence, but I believe Persian produce, such as opium, carpets, wool (dates from Busreh), is being regularly shipped from England to America. I am also informed that Persian opium finds its way to San Francisco from Hong Kong. From America Bushire receives petroleum bought at Bombay, and a very small quantity of "Old Judge" tobacco. As long as the American people remain indifferent to the starting up of a direct trade with Persia I may confidently say that the initiative will not be taken from this side. I would therefore urge upon the enterprise of the American merchants to devise some means of opening up a trade. It is true that, owing to the distance and the absence of certain facilities, America could not from the outset enjoy equal advantages as certain European countries with which Persia now is in direct commercial relations, yet I do not see why its trade with Persia should form an exception to the success which American enterprise has achieved in its competition with other countries similarly situated.

I incline to believe American cotton manufactures, suitable for the Persian market, could be advantageously introduced, and I invite the attention of American merchants to this. By way of a commencement, small selling samples would suffice. Perhaps it would not be out of place to state that the American bark, the *Storm King*, Capt. Charles Millett, came here from Boston about August, 1860, and disposed of a quantity of American sheetings and shirtings, taking a return cargo of dates, &c. There is already a regular trade carried on between America and Muscat, and shipments of dates are made direct from Busreh via London. To have show-rooms of American manufactures, &c., would, in my opinion, prove advantageous, and I would use every exertion in the furtherance of the object in view, and I shall be glad to defray personally the local expenses.—*Consular Agent Malcolm.*

Cider in France.

The apple crop is a very important one for the whole Northwest of France, and this year it has turned out very short—some authorities say from 50 to 75 per cent. less than last year's crop, which, however, was far above the average. In consequence cider apples, which last year sold for 1 franc (20 cents) the hectolitre (about $2\frac{1}{4}$ bushels), are selling now for treble the price, or 3 frs. (60 cents). In 1884 the apple crop was also short, and there was as much cider made here out of dried apples as out of fresh ones, mostly imported from America. Le Mans, in the department of the Sarthe, used to be the principal market for dried apples, but since American dried apples were imported this industry has lost most of its former importance, as our cider manufacturers prefer the American article.

There are only a few hundred barrels of old American crop here, and when the demand comes, as come it must, there will be an unusually good opening for American imports. The greatest consump-

tion of dried apples is toward summer, when the stock of cider runs down and when manufacturers use them to sweeten the old cider which is left over, as well as to replenish their cellars with new.

The sort of dried apples most current for cider manufacturing are chopped apples, with skin and core, and evaporated in hot rooms (not sun-dried). The present value may be given at from 36 to 38 frs. per 100 kilograms. (\$6.95 to \$7.50 per 220 pounds), in bond. The duty on this sort is nothing, but the city of Havre levies an *octroi* of 16½ frs. per 100 kilograms. (\$3.18 per 220 pounds) on what is consumed in the city. Sun-dried, peeled and sliced apples pay an import duty of 6 frs. and *octroi* of 12 frs. (\$2.32 per 100 kilograms), and are worth from 24 to 26 frs. (say \$4.80 to \$5 per 220 pounds), in bond.

Both duty and *octroi* are not included in the prices given, and are paid by the buyer.—*Consul Dufais*.

Foreign Notes.

Argentine Republic.

The province of Santa Fé has made a contract with J. G. Meiggs & Son for the building of 530 kilometres of railroad, of which 330 from Santa Fé to Reconquista, 105 from Las Tunas to Quebracho Herrado, 15 from San Carlos to Orofino and 80 from Pilar to Soledad.

About the new wool clip Arning & Hutz report from Buenos Ayres, October 15, that shearing had commenced in some districts of the province. The demand for dry hides for the United States was light, 10,000 selling at \$3.70 gold the 10 kilograms, 23 pound classified of the province. Gold was fluctuating between 120 and 122, closing at 121.

Brazil.

F. W. Winkel's report from Bahia, October 26, says that little sugar had been selling, some 2,000 bags No. 7½ at 1,150 reis, and 4,300 bags Nazareth's at 1,070; but these prices not covering the cost of production planters refuse selling any further thereof and business was at a standstill.

Tobacco planters were complaining that they get too little for their product. Shipments since January 1 were 136,435 arrobas, against 127,000 in 1885. Cocoa was selling at 5,400@8,000 reis, equal to 62s. 6d. per cwt., with freight. Exchange, 22½d. Rosewood was bringing 11,000 reis per arroba, with sales of 43,000 arrobes, and redwood at 650 to 750 reis; sales, 8,000 arrobes.

British Guiana.

Up to the middle of October the weather had been dry and favorable for maturing canes. Sugar exports to September 30 compare as follows:

	1886.	1885.
To Great Britain.....tons.	38,743	40,916
United States.....	22,054	20,021
Sundries.....	1,591	325
Totals.....	62,388	51,262

Brazil.

The *Diario Official* publishes the figures relating to coffee exportation at Rio and Santos as under:

RIO DE JANEIRO.

THREE MONTHS—JULY, AUGUST, SEPTEMBER.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe.....bags.	436,343	385,321	307,817	311,064
United States.....	574,683	620,487	649,935	499,107
Cañe of Good Hope.....	18,100	10,800	30,100	5,600
La Plata, &c.....	14,217	18,354	18,422	9,957
Totals.....	1,043,343	1,034,962	1,006,274	826,628

FOUR MONTHS—JULY, AUGUST, SEPTEMBER AND OCTOBER.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe.....bags.	498,000	540,183	444,583	305,000
United States.....	713,800	950,950	972,067	606,250
Other countries.....	43,333	44,550	68,900	68,000
Totals.....	1,255,033	1,544,683	1,486,450	1,159,250

SANTOS.

JULY 1 TO SEPTEMBER 30.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe.....bags.	405,600	255,450	213,450	354,835
United States.....	67,465	114,267	193,183	73,035
Other countries.....	415	1,883	5,817	1,400
Totals.....	473,480	369,600	412,450	429,270

JULY 1 TO OCTOBER 31.

	1886-7.	1885-6.	1884-5.	1883-4.
To Europe.....bags.	650,700	371,933	400,816	444,416
United States.....	138,050	154,033	253,566	138,950
Totals.....	788,750	526,566	654,382	583,366

PERNAMBUCO.

	1885-6.	1884-5.	1883-4.
Total sugar entries September 30 to October 1.....tons.	82,125	103,625	48,750
Total shipments to Europe.....tons.	14,292	30,156	39,332
" " " North America.....	47,587	57,243	67,769
" " " South America.....	31,256	35,147	51,088
Totals.....	95,135	122,546	153,189

Burmah.

Up to the middle of November the export of rice from Burmah and other countries to Europe had been as under.

	1886.	1885.	1884.	1883.
From Rangoon.....tons.	307,200	347,510	355,290	353,700
Akyab.....	117,000	103,490	88,240	105,550
Bassein.....	158,000	176,990	117,850	153,330
Moulmain.....	47,700	45,060	37,070	42,200
Calcutta.....	46,872	38,260	36,466	114,662
Madras.....	280	10,427	21,955	21,955
Saigon.....	25,188	155,777	2,402	2,402
Bangkok.....	8,781	29,334	.....	.....
Bombay.....	946	2,924	520	.....
Java.....	2,520	6,450	3,000	1,031
Japan.....	37,195	5,350	53,346	11,425
Totals.....	717,713	760,012	837,920	866,255

ARRIVALS OF RICE IN EUROPE UP TO NOVEMBER 15.

	1886.	1885.	1884.	1883.
At London.....tons.	120,626	106,019	122,253	179,366
Liverpool.....	163,646	133,505	150,223	150,109
Bremen.....	139,270	103,639	141,391	150,498
Hamburg.....	48,781	45,378	48,857	39,971
Holland.....	90,880	87,316	101,798	87,094
Belgium.....	47,583	44,275	46,615	44,275
Copenhagen.....	8,526	6,376	13,540	11,558
Flensburg.....	7,122	9,877	8,030	8,115
Scotland.....	.....	.....	.....	.....
Total Northern Europe.....	626,432	597,345	644,607	670,986
France.....tons.	23,024	24,515	33,032	85,204
Italy.....	36,552	35,940	77,801	56,819
Trieste and Fiume.....	23,380	27,454	22,290	12,144
Odessa.....	1,579	3,290	3,294	3,747
Turkey.....	.....	.....	1,330	1,449
Total Southern Europe.....	84,535	91,199	137,747	159,463
Grand totals.....	710,967	688,544	782,354	830,499

AFLOAT FOR EUROPE NOVEMBER 15.

	1886.	1885.	1884.	1883.
From Calcutta.....tons.	900	448	1,347	1,923
Madras.....	.....	.....	2,626	6,025
Akyab.....	5,517	5,161	7,722	15,878
Rangoon.....	10,276	50,687	33,246	18,691
Bassein.....	21,605	28,771	4,843	13,785
Moulmain.....	.....	2,675	2,415	1,656
Java.....	.....	.....	.....	1,790
Saigon.....	.....	.....	7,957	.....
Bangkok.....	.....	1,375	9,508	.....
Chittagong.....	.....	.....	.....	.....
Japan.....	4,745	.....	1,068	.....
Totals.....	43,043	99,117	70,732	59,748

Ceylon.

Freudenberg & Co., Colombo, October 25, forward details of the coffee shipments made from the island during the twelvemonth October 1 to September 30:

	Plantation.	Native.	Total.
1885-6.....cwt.	215,576	8,117	223,693
1884-5.....	204,506	20,305	314,811
1883-4.....	312,458	11,483	323,941

They add that prospects for the next coffee crop are extremely encouraging. Many coffee plantations continue being turned to tea culture and the blossoming period has not been satisfactory. The 1886-7 yield is not expected to exceed 150,000 cwts.

China.

According to Siemssen & Co.'s Hong Kong, October 11, tables the tea export from all China to date had been:

TOTAL EXPORTS.

	1886-7.	Season.	1885-6.
To England.....lbs.	116,420,581	113,483,337	223,693
the United States.....	23,400,752	23,616,055	314,811
Continent (without Russia).....	1,181,556	618,450	323,941
Russia.....	11,702,199	8,151,198	.....
Australia.....	18,470,483	20,929,893	.....
the Cape of Good Hope.....	380,000	1,127,140	.....
Totals.....	171,564,571	167,926,079	.....

Ecuador.

P. Wolfram & Co., Guayaquil, November 12, report about cocoa that the market was tending upward, Machala selling at \$17.25 per quintal, Balao at \$18, and Arriba at \$20.50 to \$21. Total receipts up to October 31 had been 349,413 quintals, against 196,436 in 1885, and 166,409 in 1884. Ivory nuts were getting scarcer daily, owing to the political troubles at Esmeraldas and elsewhere. They

were nominally worth \$5 to \$5.25 the quintal. Shipments so far, 142,920 quintals, against 144,406 in 1885, and 95,114 in 1884. Exchange on New York, 42 per cent.

France.

The *Journal des Fabricants de Sucre*, November 23, states that the absence of that pressure to sell beet sugar which had been looked forward to with more or less anxiety has given more confidence to the trade, and business to a much larger extent would have been done but for the high rates demanded. White No. 3 was worth 32.50 frs. at Paris, against 47.37½ frs. in 1885, and 41.25 in 1884, and the visible supply in Europe and America, Cuba included, was 711,764 tons, against 863,479 in 1885, being 151,717 tons less.

Raw and wrought silk was lively at Lyons, and the tendency hardening not only there, but equally as much at Milan and in the East. The total advance since summer was about 15 per cent. Fashion was by degrees shaping in favor of all silk, and the near future was hopeful both as regards the precious fibre itself and its manufactures, the more so as stocks of raw silk were, comparatively speaking, moderate. Should politics remain peaceful a fine spring campaign in silk goods was as good as certain.

The wine trade in France was not very active in November, except in the Gironde, Champagne and Burgundy, where the new wines were selling with ease at about last year's opening prices. In Southern France there was a lull, due to the high pretensions of holders. At Certe Spanish wines were being freely imported, but the demand was slack. The quality of the latter was all that could be wished for, but as wines in general are of good quality this year in France, there is less eagerness to take hold of imported, except at rates holding out real inducements to manipulators.

Germany.

Hop statistics compiled in Munich in November show that the world's production of hops in 1886 has been 1,823,700 cwts. of 50 kilograms, toward which Germany contributed a good average crop of 623,900 cwts. German consumption being 364,000 cwts., there will remain 259,900 cwts. to be exported. The Austrian crop was 97,600, that of Belgium 114,000, and France 52,000, while in England 625,000 cwts. were secured. The European crop being about a good average, all would be satisfactory but for the partial failure in the United States, where consumption amounts to 270,000 cwts. at the lowest, and production in 1886 has not exceeded 230,000. While the world produced, as has been stated, 1,823,700 cwts., its consumption for the year is estimated at 1,655,000, leaving an excess of production of 168,700 cwts., or about 10 per cent. Instead of exporting to England, as the United States usually do, they will be importers this campaign.

With the exception of steel rails, nearly everything in the iron and steel branches has been looking up by degrees in all November, both in Rhenish Westphalia and Upper Silesia. Instead of overproduction there is now a gradual decrease of pig-iron stocks. Spiegel is doing well for export, and so are wire rods. Finished iron is in active request, orders reaching several months ahead. From Upper Silesia there is increased exportation to Russia in anticipation of a sudden fresh raising of duties. The general outlook is encouraging, and efforts are being made to resuscitate the International Steel-Rail Syndicate with England and Belgium.

Greece.

The currant market at Patras, November 10, was unsettled by unfavorable advices from abroad and fluctuations in exchange. Some Provincial and Pyrgos had been selling at 17s. 3d. free on board in barrels. New York made offers per cable of 17s. 3d. @ 17s. 6d., but they were finally declined. At Zante, November 7, similar causes were paralyzing trade in the staple, Filiatra, fine quality, selling at 16s. 6d. Shipments so far amounted to 78,220 tons, against 70,885 in 1885. Freight to London and Liverpool, 15s.

Holland.

Betz & Van Heyst, Vlaardingen, November 12, report about the herring catch that the fine weather favored operations, and that the receipts during the month reached 24,000 barrels, against 16,000 last year, making the total for 1886 312,000 barrels, against 265,000 in 1885 and 276,000 in 1884. The remarkable firmness in the North German markets caused ordinary full prime to rule at 12.50 guilders, the better sorts ranging from 13 to 18.

The *Nederlandsche Courant* in its monthly coffee review remarks that good ordinary Java was driven all the way to 35½ centimes the half kilog., against 24½ last year, through a combination of circumstances. The Rio crop estimate is reduced to 3,250,000 bags, the first blossoming of the new crop has proved a partial failure, powerful syndicates for a further rise were formed in Europe, the speculation in New York and Havre in futures became absolutely wild, and three leading Rio de Janeiro operators began to buy in the New York market. Meanwhile the coffee movement in Europe and America during the first nine months had been as under:

ARRIVALS.						
	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	272,130	340,980	312,540	378,450	311,800	318,240
America.....	202,064	200,739	182,299	173,002	173,768	167,615
Totals.....	474,194	541,719	494,839	551,452	485,568	485,855
DELIVERIES.						
	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	328,180	317,580	292,190	314,500	287,000	280,790
America.....	176,103	174,714	157,323	154,842	148,830	146,227
Totals.....	504,283	492,294	449,513	469,342	435,830	427,017

STOCK OCTOBER 1.

	1886.	1885.	1884.	1883.	1882.	1881.
Europe.....tons.	121,450	176,100	170,950	190,250	147,000	120,650
America.....	25,961	26,005	24,976	18,160	24,938	21,388

Totals..... 147,411 204,105 195,926 208,410 172,838 142,038
There has to be added to the stock the amount of unsold coffee in the hands of the Netherlands Trading Company: 1886, 157,700 bags; 1885, 455,700 bags, and 1884, 390,300 bags.

AMERICAN MOVEMENT.

	1886.	1885.	1884.	1883.	1882.	1881.
Imports, 9 mo's.....tons.	168,375	162,892	142,840	148,849	148,187	137,711
Consumption.....	174,921	174,575	157,200	146,834	142,044	133,536
Exports.....	1,182	139	123	8,008	5,886	12,691
Deliveries.....	176,103	174,714	157,323	154,842	148,830	146,227
Stock, September 30....	25,961	26,005	24,976	18,160	24,938	21,388

COFFEE STOCK IN EUROPE NOVEMBER 1.

	1886.	1885.	1884.
London.....tons.	10,072	11,023	16,608
Liverpool.....	519	1,255	800
Holland.....	30,250	54,300	54,100
Hamburg.....	11,500	17,000	18,500
Trieste.....	6,260	8,820	10,000
Havre.....	52,437	76,368	64,100
Antwerp.....	7,500	9,700	10,500
Marseilles.....	2,800	4,275	6,500
Bordeaux.....	2,050	6,400	7,000
Copenhagen.....	1,510	2,650	2,160
Totals.....	124,896	192,691	190,268
Against October 1.....	131,373	206,561	204,827

Java.

Advices from Batavia of the last week in November state that the government estimates its coffee crop at 816,870 piculs, and that on December 22 there will be sold at Batavia for government account 25,000 piculs of Passaroean coffee. The current Padang Government coffee crop is estimated at 84,000 piculs as an extreme. Following are the sugar shipments made per steamer:

	July-September.	1886.	1885.	1884.
To Port Said, Mediterranean, for orders.....tons.	12,521	22,565	15,923	15,923
Holland.....	1	1,247	5,938	5,938
France and Italy.....	5,283	5,093	11,697	11,697
Totals.....	17,805	28,905	33,558	33,558

Adding thereto the shipments per sailing vessels, it appears that the total this year so far was only 73,193 tons to Europe, against 122,546 same time in 1885, and 63,074 in 1884.

Mauritius.

The comparative sugar exports to October 22 were as under:

	1886-7.	1885-6.	1884-5.
To United Kingdom.....tons.	1,483	2,231	3,083
France.....	7	.....	.....
Australia.....	4,955	4,382	7,217
New Zealand.....	614	1,266	2,642
Cape of Good Hope.....	1,189	765	1,543
Bombay.....	15,251	10,626	11,986
Calcutta.....	985	426	.....
Kurrachee.....	3,172	.....	.....
United States of America.....	.....	364	.....
Other places.....	871	250	141
Totals.....	28,527	20,310	26,612

During the last week of October it became more and more evident that the sugar crop would be short. Some few showers of rain had, it is true, interrupted the persistent drought, but they did not do much good beyond refreshing the canes; in fact, it was too late for any amount of moisture to propitiate the latter, the season being too far advanced, hence the new crop is not likely to exceed in yield 90,000 tons.

New Zealand.

R. & W. R. Walker, Auckland, October 12, state, with reference to Kauri gum, that under pressing demand the price had risen another £2 for fair good ordinary and £3 poor to medium, whereas East Coast gum remains unaltered. Following were the quotations for crude: Poor to medium, £28 10s. per ton; fair to good, £39 8s., and East Coast, £50 10s.; superior, proportionately higher. Stock, 871 tons, four weeks' receipts, 405; together, 1,276 tons, less shipments, 508; leaves on hand, 768 tons. The Nettie was to sail for New York early in November.

Philippine Islands.

The total sugar shipments from the three ports to October 11 were as follows:

	1886.	1885.	1884.
To Great Britain.....tons.	22,849	22,247	15,790
United States.....	119,260	116,542	66,051
Sundries.....	23,205	28,681	20,261
Total.....	165,314	174,470	102,102

With reference to the new coffee crop, advices dated October 14 are to the effect that the drought had affected the crop very much, so that it is not likely that the estimate of 5,500 tons will be reached. The first Yambaanga coffee was expected to arrive about the middle of November. The quality of the new tobacco has turned

out fully up to expectations. Shipments to date amounted to 82,638 quintals, against 81,864 in 1885. Up to November 15 hemp receipts had reached at all ports 349,000 bales, of which 139,000 had been shipped to England and 161,000 to the United States. Loading, November 15, for the former, 10,000 bales, and for the latter 5,000. Exchange, six months' sight, 38. 10½d.

Reunion.

Advices by mail from St. Denis are to October 26. Crystallized sugar was selling at 27.50 frs. the 100 kilogs. Grinding was proceeding actively, favored by dry weather, and the percentage of sugar obtained satisfactory, but the drought was impeding the development of canes in the field, especially in the windward portion of the island; hence there were serious apprehensions as to the size of the new crop. Shipments to date amounted to 5,725 tons, against 3,434 in 1885. Vanilla beans—While the present crop will show a deficiency, this is likely to be the case to a still more considerable degree as regards the coming yield, the vines having suffered from the drought. There was an active demand at 35 to 43 frs. per kilog. Shipments so far, 7,533 kilogs., against 10,029 last year. Exchange, 90 days' sight on Paris, 4 per cent. premium.

Russia.

As per statement made by Burkhardt & Co., the shipments from Batoum amounted, during the first nine months of the year, to 568,000 barrels of refined petroleum, 612,000 cwts. of 50 kilog. lubricating oil, 17,209 tons manganese iron ore and 26,600 tons of grain, mostly wheat.

Spain.

With the exception of Old Castile, nearly all of the leading wine districts of Spain can boast this year of an ample vintage of superior quality as a whole, so that old wines, unless they be of choice growth, are at a discount. After great animation in the beginning of the new campaign the markets were quiet and prices weak. Spanish proprietors are, it would seem, altogether too extravagant in their pretensions, and not much business can be done for export till they abate considerably in their views, especially in Catalonia. French buyers evince little readiness to operate on the present basis, and it is to be hoped that holders may become more tractable in December than they were in November. The demand at Barcelona for the Rio de la Plata and Cuba was light at \$40 for the former and \$32 to \$34 the latter, advices from those countries not being of a satisfactory nature. American cotton was wanted at Barcelona after a sale of 6,199 bales Louisiana and uplands at full prices, leaving the market bare. Business prospects in Spain are cheerful generally, for, with abundant crops and great activity in mining, the consumptive capabilities of the masses were seldom greater, and as politically the situation is reassuring, merchants feel encouraged to give larger orders than they would do under less favorable circumstances. To some extent business has been somewhat hampered in the interior by heavy rains, and winter was setting in earlier than usual.

Venezuela.

At Carácas, October 19, Tumero coffee was eagerly being bought at \$13.50. Since October cocoa receipts had amounted to only 191 bags, against 600 during the corresponding time of 1885. The prices paid during October were: Rio Chico brown, \$23; Higuerote, Curiepe and Capaga, \$25@26; Choroní, \$38, and Ocumare, \$40. The new crop will be abundant; the first receipts will commence dropping in early in November.

West Indies.

CUBA.—Advices from Cuba with reference to the new sugar crop are highly favorable. During November the weather continued propitious, the canes looking vigorous, tall and heavy, and the estimate of 850,000 tons is not changed. Planters are economizing in every imaginable manner. The sugar movement up to November had been as under:

	Boxes.	1886. Bags.	Hhds.
Weekly receipts.....	.....	70	132
" clearances.....	513	25,829	894
" " to Channel and U. K.....	.....	.....	.....
Total receipts, including stocks on January 1.....	63,609	1,738,014	59,978
" shipments to all ports.....	45,937	1,276,509	67,343
" " Channel and U. K.....	.....	.....	.....
" Stock.....	24,913	316,878	5,336

	Boxes.	1885. Bags.	Hhds.
Weekly receipts.....	.....	1,632	521
" clearances.....	236	14,139	1,925
" " to Channel and U. K.....	.....	.....	.....
Total receipts, including stocks on January 1.....	117,554	1,223,310	164,807
" shipments to all ports.....	72,256	994,483	151,515
" " Channel and U. K.....	2,538	78,341	6,553
" Stock.....	24,158	183,124	10,370

TRINIDAD.—During October occasional heavy showers prevented a general start to reap stand-over sugar-canes and only a few estates continued grinding. Sugar shipments up to November compared as under:

	Hhds.	Tierces.	Bags and Barrels.
1886.....	23,044	12,505	195,744
Of which to America.....	22,332	11,330	65,657
1885.....	41,695	12,833	197,950
1884.....	43,683	9,482	136,163

E. P. Mason, writing from Port of Spain on October 29 about cocoa, states that receipts of the new crop have been extremely light, but that gathering

being general in the island November would bring along a fair supply. Good ordinary was selling at \$15.25@15.50 the fanega, and El Salvador and Barbaro at \$15.50. Shipments since January 1 had been 15,069,800 pounds, against 13,330,710 last year, and 12,503,415 in 1884. Asphaltum was selling at \$12.60 refined and \$6 crude per ton. There had been shipped since January 1 34,241 tons, against 26,300 in 1885 and 35,550 in 1884. Exchange, 90 days' sight on London, \$2.86.

Review of the Markets.

Reports for the Month ended December 1.

Butter.—There was more trading toward the close and prices are steadier, especially for Elgins and the best of State dairy; creamery outside of dairy is unsettled as to prices. We quote: Creamery, 20@27c.; State dairy, 21@28c.; Western, 22@24c.

Cheese.—The market is strong. Buyers are not disposed to take more than moderate quantities, but the general run of stock is held with confidence and some lots cannot be had at quotations. We quote: State factory, fancy, colored, 12½@12¾c.; do., fancy, white, 12½c.; do., good and fine, 11½@12¾c.; do., fair, 11@11½c.; do., common, 10@10½c.; do., light skims 10@11c.; Ohio factory fine, flat, 12@12½c.; do., good, 11@11½c.; Pennsylvania skims, 2½@3¾c.

Coffee.—Brazil grades—Owing to inspiration chiefly from Rio, the market has developed a sudden degree of strength which has been maintained in spite of strong adverse influences. Sales of spot and afloat made included No. 4, at 13½c., No. 5, at 12½@13c.; No. 6, at 12½@12¾c.; No. 7, at 12½@12¾c., and these prices were bid at the close. The monthly Rio coffee statement of William Scott's Sons is as follows:

Stock in warehouses November 1, 1886.....	bags.	346,557
Received since.....		
At New York.....	bags.	163,334
Baltimore.....		31,856
New Orleans.....		16,303
Galveston.....		4,902
		216,395

Total supply.....		562,946
Delivered from warehouses since—		
At New York.....	bags.	213,518
Baltimore.....		21,843
New Orleans.....		14,800
Galveston.....		3,000
		253,161

Stock in warehouses December 1, 1886—		
At New York.....	bags.	217,761
Baltimore.....		61,571
New Orleans.....		25,390
Galveston.....		5,063

Total stock.....		309,785
Afloat and loading for United States to October 30.....		9,000
Purchased for United States to November 30 (70,000 Santos).....		317,500

Total visible supply December 1, 1886.....	bags.	636,285
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Mild coffees—East India grades have ruled quiet and steady, and fresh business has moved Macassar at 13½c. West India grades have been active and firm and transactions have included Maracaibo, Savanilla, Central America and Mexican. Mocha is firmer. Sales have been made at 19c., but at close there were no sellers under 20c. We quote: Rio, ordinary cargoes, per pound, 12½c.; fair do., 13½c.; good do., 13¾c.; prime do., 14½c. Santos, fair to good cargoes, 13@13½c.; Java, 13@13½c.; Singapore, 11@13½c.; Ceylon, 9½@12½c.; Maracaibo, 13@14½c.; La Guayra, 8@11c.; Jamaica, 10@12½c.; San Domingo, 9@9½c.; Porto Rico, 10½@12½c.; Central America, 11@14c.; Mexican, 11½@13c.; Angostura, 10½@12½c.; Savanilla, 11@14c.; Mocha, 20@21c.

Cotton.—The demand for spot is very light, but notwithstanding that the market is firm, and closed at 9½@9 7-16c. for middling. There has been only a light demand for options also, yet the market has ruled firmer and higher. We quote: December, 9.16@9.17c.; January, 9.21@9.22c.; February, 9.30@9.31c.; March, 9.40@9.41c.; April, 9.50@9.51c.; May, 9.60@9.61c.; June, 9.70@9.71c.; July, 9.78@9.79c.; August, 9.81@9.86c.

Dry Goods.—Business has been of a larger volume than appearances would indicate. Aside from free forwardings of all classes of goods in the execution of orders, especially to the manufacturing, converting and finishing trade, an irregular demand of daily growth has resulted in a good aggregate. The market for woollens has been featureless. Much steadiness has been maintained in the deliveries on spring orders. Of old-weight woollens agents' supplies are merely nominal, while in overcoatings there has been a very fair call for reassortments. Woollen manufacturers intend to limit their production pretty well to orders, as with the increased cost of wool there is no room for speculation. While trade in cotton goods has been somewhat uneven, no great fault is to be found with the results. The price for silver and India and Eastern exchanges having been disturbed, the export demands for such markets has been restricted, although toward the end of the month considerable business for future delivery has been laid out. Stocks are, for the most part, nominal, and, considering the period of the year and the apparently quiet demand, the market is in a very satisfactory condition. Printing cloths have been in very fair sale, chiefly, however, for contracts for the first quarter of the new year for 64x 64 cloths at 3½c., at which the market is steadier. Odd counts, fancy and wide, cloths have been in improved inquiry, but the market for 56x66 cloths has been sluggish, followed by sales at 2½c., closing stronger. Gingham, seersuckers and other wash fabrics have been in improved demand, and a large business for spring has been laid out in staples and staple fancies. Dress goods and soft wool dress fabrics have been in wide distribution on orders for spring. The total imports since January 1, 1886, have been \$107,168,850, against \$92,665,071 for the same time in 1885, or an increase of \$14,503,779. The imports of foreign dry goods at this port for the month

amounted to \$8,124,961 in value, while the goods marketed during the month were valued at \$8,134,670.

Drugs and Chemicals.—Trading is limited to small lots. We quote: Soda ash, \$1.30 1/2@1.35; bleaching powder, \$2.00 1/2@2.12 1/2; caustic soda, \$2.55; sal soda, \$1; acetic acid, 2 1/2@3c.; oxalic acid, 6 1/2@6 3/4c.; citric acid, 58@59c.; tartaric acid 43@45c. for crystals and 44@46c. for powdered; acetate of lime, 1.8c@1.90c. for brown; aloes, 6 1/2@7c. for Cape and 11@12c. for powdered; alum, \$1.75@1.87 1/2 for lump and \$1.87 1/2@2 for ground; ammonia carbonate, 8 1/2@9c. for English and 9@9 1/2c. for D. and O.; asafoetida, 8 1/2@9 1/2c.; arnica flowers, 7@8c.; albumen, 17@17 1/2c. for foreign blood; arsenic, 2 1/2@2 3/4c.; balsam copaiva, 37@40c.; balsam tolu, 36@38c.; balsam Peru, \$1.30 bichromate of potash, 9 1/2@10 1/2c. for Scotch; borax, 6@6 1/2c. for refined in bbls.; blue vitriol, 4 1/2@4 3/4c.; brimstone, \$21 for seconds; buchu leaves 6 1/2@10c. for shorts and 21@25c. for longs; cantharides, \$1.45@2.15 for Russian; camphor, refined, 22 1/2@24c.; castor-oil, 17@18c. in bbls. and cases; cardamoms, 55@65c. for Aleppy and 70@90c. for Malabar; cassia buds, 10 1/2@11c.; camomile flowers, 6@10c. for old and 18@20c. for new German; cutch, 6 1/2@7c.; chlorate of potash, 16@16 1/2c. for crystal and 16 1/2c. for powdered; cochineal, 30@31c. for Teneriffe silver; cream tartar, 3 1/2@3 3/4c. for crystals and 35@36c. for powdered; gambier, 4 1/2@5 1/2c.; ginger, 13@14c. for Jamaica bleached and 10 1/2@12c. for unbleached; glycerine, quoted 19@19 1/2c.; Guarana, \$1.37 1/2; iodide of potash, \$2.60@2.70; ipecacuanha, 8 1/2@9c., and powdered, 9c@9 1/2c.; licorice paste, 27@28c. for P. & S., and 30@32c. for Corigliano; manna, 55@60c. for small flake and 95c. for large flake; morphine, \$2.95@3 in tin and \$3.65@3.75 in glass; prussiate of potash, 20 1/2c. for American yellow; quicksilver, 53@55c.; quinine, 52@53c. for German and 58@65c. for American; roots, 4 1/2@4 3/4c. for gentian; Seneca root, 43@45c., and Colombo root, 9@12c.; ginseng, \$1.80@2.30; sarsaparilla, 9@10 1/2c. for Mexican; seeds, 4 1/2@5c. for Trieste brown mustard and 5 1/2@6c. for California yellow; senna, 30c. for Alexandria; shellac, for D. C. and L. B. over and S. under, 20@21c. per lb.; V. S. O., 16@16 1/2c. per lb.; I in diamond, 15c. per lb.; sticklac, —c. per lb.; sugar of lead, 6 1/2@7c. for brown and 12c. for white; Tonka beans, \$1.50@1.60 for Angostura.

Freights.—There is less urgency in the demand for room on berth, especially on grain, on which rates are lower and irregular, otherwise quotations showing little change. The chartering movement is generally at about former figures. An unusually interesting item in the way of charter contracts was received at the close by cable from London, to the effect that three British steamships had been placed under contract there to load at Batoum with petroleum in cases for Bombay on the basis of 9d. (add expenses paid at Batoum)—two of the steamers arriving being the Mounts Bay and the Rimpha.

Quotations from New York to United Kingdom and Continental ports:

Steam.	Grain.	Oilcake.	Flour.	Sugar.	Provisions.	Cheese.	Beef.	Pork.	Cotton.
Liverpool.	4 1/2	15.	15.	20.	22.50@30	30@35	4@5	3@3.6	3.16
London.	5 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Glasgow.	5 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Bristol.	5 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Leith.	5 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Hull.	5 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Newcastle.	5 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Antwerp.	5 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Hamburg.	7 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Bremen.	7 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Copenh'a.	7 1/2	17.6	18.9	20.	22.50	35.	5.6	4.	....
Marseilles.	4.6*	..	..	..	..	..	..	..	..

* Store.

Cork for orders, sail, 4s.; steam, 4s. 4 1/2d. Direct port, United Kingdom, 3@6d. less.

OIL QUOTATIONS.

	Refined Petroleum.	Naphtha.	Cases.
Cork and United Kingdom.	3. @ 3.3	3. @ 3.3	Levant..... 16.
Direct port, United Kingdom.	2.6 @ 2.10 1/2	2.9 @ 3.	Adriatic..... 17.
Direct Continent.....	2.6 @ 3.	2.9 @ 3.3	Mediterranean. 14@25
Baltic.....	..	..	..

Fruits.—Raisins are in fair demand at steady prices; currants are in moderate call and easy; citron is steady, and Turkey prunes are in moderate demand. We quote: Valencia raisins, 6 1/2@8 1/2c.; loose muscatel, \$1.80; London layers, \$2.10@2.35; Sultan, 6 1/2@7 1/2c.; Ondara layers, 8 1/2@8 3/4c. Almonds—Princess, paper shelled, 22 1/2c.; Sicily, shelled, 22 1/2@23c.; Jordan, 38@40c.; Tarragona, 17 1/2@17 3/4c.; Ivica, 15 1/2@15 3/4c.; Languedoc, 17c.; French sardines, 10 1/2@11 1/2c. for quarter boxes and 16@16 1/2c. for half boxes. Citron, 18@18 1/2c. Currants, 5 1/2@6c. Figs, 8 1/2@9c. Turkey prunes, 3 1/2@4 1/2c.; French prunes, 7 1/2@12 1/2c. Grenoble walnuts, 14 1/2@15c.; French do., 7 1/2@8 1/2c.; Naples do., 13 1/2@14c. Sicily filberts, 8 1/2@9c.; Naples do., 7 1/2@7 3/4c. Dates, 5 1/2@7c. for Persian in boxes, and fards, 6 1/2@7c. Brazil nuts, 10c.; Chili walnuts, 8 1/2@8 3/4c. Fresh Fruits—Apples—Gravenstein, per bbl., at \$2.75@3; King, per bbl., at \$2.75@3.25; Baldwins, per bbl., at \$2@2.25; Bellflower, per bbl., at \$1.75@2.25. Grapes—Catawba, at 3 1/2@4 1/2c. per lb.; Concord, per lb., at 3@4c. Cranberries at \$7 for Cape Cod best; \$6@6.50 for choice; \$5.25@5.75 for light; \$1.75@2 for choice, per crate. Domestic Dried—There is a fairly active movement, apples having the most attention. The general market is firm. We quote: Apples—Fancy evaporated, 10c.; do., choice evaporated, 9 1/2c.; do., prime, 9c.; do., Southern sliced, prime, 3 1/2@4 1/2c.; do., North Carolina fancy sundried, new, 6 1/2@7c.; do., North Carolina, choice, 5 1/2@5 3/4c.; do., North Carolina, prime, 3 1/2@4 1/2c. Peaches—North Carolina, peeled, choice, new, 11 1/2@12c.; do., North Carolina, peeled, fancy new, 13@13 1/2c.; do., Georgia choice, 11c.; do., Georgia

prime fancy, new, 12@12 1/2c.; do., Georgia, 11 1/2c.; cherries, pitted, 9 1/2@10c.; raspberries, evaporated, 18@20c.; do., sun-dried, 16@17c.; blackberries, prime, 7 1/2@7 3/4c. Plums, 6@6 1/2c. Peaches, unpeeled halves, 4 1/2c.; do., unpeeled quarters, 3 1/2@3 3/4c.

Flour and Meal.—State and Western flour has been stronger, and for choice to fancy slightly better figures have been asked. There is a fair degree of activity on home trade and a moderate call for export. We quote: No grade, \$1.80@2; fine, \$2.10@2.65; supers, \$2.50@3; extras No. 2, \$3@3.35; extras No. 1, \$3.50@4.50; clear bakers', \$3.50@4; straight bakers', \$4@4.50; patents, \$4.50@5; city extras (European) in 140-lb. sacks, \$3.75@3.80; city West Indies, \$4.50@4.55; city patent, \$4.75@5. Southern flour is steady under moderate inquiry. We quote: Fine, \$2.50@2.75; supers, \$2.65@2.85; extras, \$3.25@4.50; Richmond first, \$4.75@4.87 1/2; Richmond second, \$4.25@4.37 1/2; patents, 4.50@4.90. Rye flour has been active and full prices have been obtained. We quote: Superfine at \$2.90@3.15 for about fair to fancy State.

Grain.—Exporters have been buyers to a fair extent and spot stock was sold up about 1/2c. Transactions included No. 2 red, afloat, at 88 1/2@89c.; No. 2 red, f. o. b., at 87 1/2c.; No. 2 red, in elevator, at 87@87 1/2c.; No. 3 red, at 85 1/2@86 1/2c.; Red ungraded, at 79@90 1/2c.; ungraded white, at 83 1/2@90c.; No. 1 hard, at 92 1/2c.; No. 1 Northern at 91c.; ungraded spring, at 89c. The options were active, unsettled and feverish, closing lower. Late sales included December, at 86 1/2c.; January, 89 1/2c.; February, 89 1/2c.; April, 92 1/2c.; May, 94 1/2c.; June, 95 1/2c. "Spot" corn was wanted partly on export account, and prices gained 1/2@3/4c. Sales for prompt and nearby delivery included New York No. 2, in elevator, at 47 1/2c.; do. afloat at 48 1/2@48 3/4c.; ungraded mixed in lots, at 45@47 1/2c.; No. 2 white, 47 1/2@48c. Options closed weak and late transactions included December, 47@47 1/2c.; January, 48 1/2@48 3/4c.; February, 49 1/2@49 1/2c.; May, 51 1/2@51 3/4c. Oats on spot were about steady under a fair degree of activity. Options were lively and closed steady. Closing transactions for prompt and nearby delivery were: No. 2 white at 36 1/2c.; No. 3 white, at 35 1/2@36c.; No. 2 elevator, at 33 1/2@34c.; White Western, ungraded, at 35@41c.; Western mixed, ungraded, at 32@35 1/2c.; white State, ungraded, at 37@38 1/2c. The options included December, at 33 1/2@34c.; January, 34 1/2@34 1/2c.; May, 36 1/2@36 1/2c. Exports since January 1 aggregate 693,785 bushels.

Leather.—Hemlock sole has been in light demand from manufacturers, and for some descriptions values have been slightly lower. All grades of acid have been in steady call for export, and values are unchanged. We quote: Hemlock Sole—Non-acid Buenos Ayres light, first selection, 21@21 1/2c.; middle do., 21 1/2@22 1/2c.; heavy do., 21 1/2@22c.; light seconds, 19@—c.; middle do., 19 1/2@20c.; heavy do., 19 1/2@20c.; damaged, all weights, 17c.; non-acid California light, first selection, 21c.; middle do., 21c.; heavy do., 21@21 1/2c.; light seconds, 19c.; middle do., 18@19c.; heavy do., 18 1/2@19c.; non-acid common hide—light, first selection, 20c.; middle do., 20 1/2@21 1/2c.; heavy do., 20@22c.; light seconds, 18@19c.; middle do., 18 1/2c.; heavy do., 18@19c.; damaged, all weights, 16@16 1/2c.; rejects, 12@12 1/2c.; acid hide of all kinds—light, first selection, 20c.; middle do., 20 1/2@23c.; heavy do., 21@25c.; light seconds, 18@18 1/2c.; middle do., 18@19c.; heavy do., 18 1/2@19c.; damaged, all weights, 15@18c. Union Tanned—Slaughter light backs, 31c.; middle backs, 30 1/2@31c.; middle backs, heavy, 30 1/2@31c.; seconds, backs, 28 1/2@29 1/2c.; light crop, 28@29 1/2c.; middle crop, 28@29c.; bellies, 14@15 1/2c. Calcutta Buffalo—Light, 17@19c.; middle, 17@18 1/2c.; damaged, 15@17c.; poor damaged, 12@13c.

Lumber.—The lumber market has been favored with an average business. Supplies hold out very well, and selections have been made without difficulty. On the first hand offering the tone is very well preserved, and an outlet provided for about everything available. Lath has been somewhat more plenty, and is steady at \$2.25 per M. for Eastern. Quotations are: Spruce, random cargo, \$14@17 per M. feet; do. special cargo, \$17@18. White pine, South American shippers, per M. feet, \$28@30; do. West India shippers, \$16@17; do. box boards, \$14@15. Yellow pine, random cargo, \$18@19.50; do. special cargo, \$15.50@21; do. green flooring boards, \$17@18; do. dry flooring boards, \$21@22; do. siding, \$21@23; do. cargoes f. o. b. Atlantic ports, rough, \$13@15; do. cargoes f. o. b. Atlantic ports, dressed, \$18@20; do. cargoes, f. o. b. Gulf ports, rough, \$12@14; do. cargoes f. o. b. Gulf ports, dressed, \$19@21.

Metals.—Copper—During the month there was a pool sale of Lake ingot involving some 8,000,000 lbs. at 12c. At that price the market is firm, with Baltimore at 10 1/2c. and Arizona at 11 1/2c. Pig Iron—The market is decidedly strong. Popular brands of Lehigh are difficult to secure at first hands for early delivery, and dealers obtain high prices, \$20, for small lots. Several brands that usually sell at discount are bringing \$18.50@19 for No. 1 X foundry, and \$17.50@18 for No. 2 X foundry. With respect to contracts for next year's delivery, furnace agents are somewhat reticent, but we learn of some business going on in a quiet way in January and February deliveries, on the basis of \$19 for No. 1 X, with nothing, however, beyond "accommodating" regular customers. Bessemer pig is strong, with demand active for future deliveries. Domestic is quoted at \$18.50@19 at furnace, and foreign at \$20 laid down here, future shipment. Scotch pig fails to find more than the customary sale, and prices in no instance are better than steady. We quote: \$19 for Eglington, \$19.50 for Dalmellington, \$20 for Glengarnock, \$20.50 for Gartsherrie, \$20.50 for Summerlee, and \$21@21.50 for Coltness. Old Rails—Sales of tees have been reported at \$23@23.50, to arrive from abroad, and \$23.50 for American delivered in Pennsylvania. Street rails are quoted at \$23.50 here, at which there have been sales. Scrap Iron—Foreign wrought has sold at \$20.50, ex-store, which is an advance over sales in the middle of the month. That price is also asked for lots to arrive. Yard men ask \$21@22 for No. 1. Car wheels are firm at \$17.50@18 here. Steel Rails—Eastern mills have taken orders at \$35@35.50 at works for standard sections. The demand is good and the market strong. Tin Plate—In the absence of any important demand prices are barely steady. We quote prices as follows: I. C. charcoal, 1/2 cross assortment, \$4.60@4.65 for Allaway and \$5.15@5.20 for Melyn grade; for each additional X add \$1 and \$1.50 respectively. I. C. coke, \$4.22 1/2@4.25 for B. V. grade; \$4.30 for J. B. grade. I. C. Bessemer steel, \$4.30@4.32 1/2. Charcoal tar, \$4.10@4.15 for Allaway grade; \$4.20 for Dean grade, 14x20, and \$8.30 and \$8.40@8.50 respectively for do. 20x28. Lead—Sales of domestic have been made at 4.40c.,

and with moderate demand and offerings reserved the market is firm. Tin—In sympathy with London the market here closed higher, with holders indifferent. Speculation is tame and consumers are buying in a hand-to-mouth way. We quote: Straits, 22.65@22.70c. cash in small lots and 22½c. cash, and 22.80@22.85c., 30 days, for ordinary store parcels. English L. and F. about 22½@22½c. and Banca 23c. nominal.

Molasses.—There has been only a light trade demand for foreign grades, while New Orleans has been quite active, both as to new and old crop. The latter has ruled steady, but the former closed a shade easier, fancy having been sold at 49c., choice at 47c., strictly prime at 45c. Sugar-house closed dull and nominal in the absence of fresh business. In syrups there has been a good demand for fine grades of straight sugar goods and values have ruled steady. Lower and medium grades have moved off slowly. We quote 16@25c. for common to fine. We quote: Cuba, 50 test, —@—c.; Porto Rico, 23@24c.; Barbadoes, 23@25c.; Demerara, 19@17c.; Martinique, 19@17c.; New Orleans, new, fancy, 50c.; do., prime, 43@47c.; do., low grades, 34@40c.; sugar-house molasses, hhds., 10c.; do., bbls., —@—c.; do., extra heavy, 12½c.; sugar, low, 16@17c.; do., common, 20@22c. do., fair, 22@23c.

Naval Stores.—The spirits of turpentine market is quiet and easy; merchantable order quoted at 36c. Rosins are steady and unchanged. We quote: Strained, 97c.@1; good strained, \$1.02½@1.05; E, \$1.27½; F, \$1.35; G, \$1.45; H, \$1.47½; I, \$1.60; K, \$2.02½; M, \$2.60; N, \$2.90; W G, \$3.12½; W W, \$3.50. Tar is quiet and quoted \$1.90@2.25. Pitch in light demand and is quoted at \$1.35@1.45.

Paper.—There has been a fair, steady demand for all grades in the paper market during the past month. Early in the month the Manila Division of the American Paper Manufacturers' Association decided to advance ¼c. on prices of November 1. The advance has been put in force and has been maintained. Writings have been in fair movement at steady prices. Book has been moving in good shape and on prime grades prices have held well. News has been in active demand at the low prices ruling and mills at present are busy and well sold ahead. Strawboards are having more than the usual attention for this time of the year and are moving at full association prices. Straw wrappings have had a good call on shipping account and prices are steady. We quote: Fine flat caps, 13@15c.; superfine, 16@18c.; record and ledger, 18@22c.; supersized and calendered book, 7½@10½c.; do. do., extra machine finish, 7@7½c.; do. do., low grade, 6½@7½c.; news, No. 1, 5@5½c.; do., rag and wood, 4½@5½c.; do., straw, 5½@5¾c.; manillas, No. 1, light weight, 7½@8c.; do., heavy weight, 6½@7c.; No. 2 manillas, 5@6c.; Bogus do., 2½@3c.; straw wrapping, heavy weight, 1½@2c.; do. do., light weight, 2@2½c.

Petroleum.—The market for certificates has been excited and prices, although irregular, have nominally advanced, closing at 8½@8¾c. The market for refined rules stronger, more in sympathy with certificates than because of any increase in demand, which is moderate. Sales have been made at 7½c. here and in Baltimore and 7c. in Philadelphia. Case is quoted at 8½c. Crude has met with some inquiry, and prices are better, closing at 6½@6¾c. Naphtha is quiet and steady at 8½c.

EXPORTS OF REFINED, CRUDE AND NAPHTHA, FROM ALL PORTS, JANUARY 1 TO NOVEMBER 27.

	1886.	1885.
From Boston.....gals.	5,266,642	8,006,681
Philadelphia.....	138,361,181	139,245,870
Baltimore.....	14,208,859	10,520,087
Perth Amboy.....	5,648,102	.....
Totals.....gals.	163,484,784	157,792,638
From New York.....	358,045,652	337,262,316
Total exports from United States.....	521,530,436	495,054,954

Provisions.—Toward the close there was a weakening of the pork market, and trading was quiet. We quote: Mess, one year old, \$10.75@11; extra heavy, \$11.25; two years old, \$10.37½@10.62½; family mess, \$13; clear back straight goods, \$14.25 @15.25, the latter for fancy; extra prime, \$10@10.50. Dressed hogs are in demand at stronger prices. We quote: 5½c. for bacon; 5½c. for 180 lbs. average, 5½c. for 160 lbs. average, and 5½c. for pigs. Cured meats—City meats are steady and in moderate demand. We quote: Pickled bellies, 6½c.; fresh hams, 8½@9c.; city pickled shoulders, 5½c.; smoked shoulders, 6½@6¾c.; pickled hams, 9½c., and smoked hams, 10½@10¾c. Middles in the West there are orders on export account, but it is difficult to complete them, as packers are unwilling to sell future deliveries. Long and short clear, half and half at Chicago, quoted at 5.60c. bid and 5.65c. asked for December, and short clear at 5.70c. bid and 5.75c. asked for December. Beef hams are hard to get, except at outside prices, quotations at the West being \$18.50@19 and here \$19@20. Beef—Barreled stock is in moderate demand, but tierced stock is dull. Quotations are as follows: City extra Indian mess at \$15 @17 in tierces for best brands, and \$12@14 for lower grades; extra mess in barrels at \$7.50@8; packet at \$8.50@9 for barrels, plate at \$8@8.50. Lard—The lard market is in better position than that of pork, although there was a small reaction. "Cash" was least affected, owing to reserved offerings at the West and no special desire to sell here. We note sales of Western steam, prompt delivery, for export, at 6.37c. City steam closed five points higher at 6.25c. Refined is higher and is quoted: Continent, 6.75c. and South American 7c. Closing prices in the options were: December, 6.35c.; January, 6.40c.; February, 6.47c.; March, 6.55c.; April, 6.62@6.63c.; May, 6.71c.

Staroh.—Western corn is in good demand and the market is firm at 2½c. for bbls. and 2½c. for bxs. Potato rules 3½@3¾c.

Stearine.—The lard stearine is quiet but steady, and choice is quoted at 6½@7c. Oleomargarine is in moderate demand and we quote city at 6½c.

Sugar.—Raw—There has only been a moderate business in the raw-sugar market. Refiners are taking goods in a conservative way, and their attention is confined wholly to spot goods. Sales have been chiefly of low East Indias, which have ruled steady on the basis of 4½c. for fair refining, while a few parcels of centrifugals have sold at 5 3-16c. for 96 test. Scarcely any business has been done in Cuba cargoes on cost and freight terms. The new crop is close at hand, and buyers are not

disposed to stock up. Sellers' views are 2½c. for 96 test centrifugals, with buyers' views ¼c. less. Late sales included: Demerara centrifugal, basis 96 test, 5 3-16c.; Maranham, 82 test, 4c.; superior Manilla, 8½ test, 3½c.; Cuba molasses, 90½ test, 4 17-32c.; 148 bags do., 87-30 test, 4 11-32c.; Cebu, 83-40 test, 4 1-16c.; 730 bags Trinidad centrifugals, 95 test, 5½c. Refined—The market has ruled quiet and steady, and quotations for export, less drawbacks, are: Cut loaf, \$3.55@3.67; Cubes, \$3.24; crushed, \$3.55@3.67; powdered, \$3.50@3.55; granulated, \$3.11.

Tea.—The market for all descriptions has ruled strong, with an actual advance established from the lowest point of 2 cents per lb. on Formosaa, 1½c. on Amoy, and 2c. to 3c. on greens. There has been very little disposition to trade in Japan, but they will no doubt sympathize with the hardening tendency shown for other descriptions. The late transactions from first and second hands aggregate about 12,000 half-chests Formosa, and several invoices of country, greens and Pingueys. The firmness of holders, together with the withdrawal of goods from offer, has prevented business.

Tobacco.—Kentucky is quiet and very few orders are in the market at present. Most of the late sales are on export account. We quote: New common lugs, 3½@4c.; good, 4½@5c.; low leaf, 5½@6½c.; good, 9@10c., and fine, 11@12c. Virginia is in good demand and firm. We quote as follows: 5@7c. for common to good lugs, 8@10c. for common to medium leaf, 10@11c. for medium to good do., and 11½@18c. for good to fine do.; common bright wrappers, 19@17½c.; good do., 22½@30c.; fine do., 40@50c.; common smokers, 8@12½c.; good do., 15@20c.; fine do., 22½@27½c. For seed only a moderate demand is experienced, but prices are unchanged. Late sales include 1885 Pennsylvania (Havana) at on p. t.; 1885 New England (Havana) at 19@25c. and sundries at 7@30c. Foreign is unchanged. We note sales of Havana at 60c.@\$1.05 and Sumatra at \$1.20@1.60.

STOCK OF SPANISH TOBACCO.

	Havana.	Cuba.	Sagua.	Cienfuegos.	Yara.
Stock November 1, 1886...bales.	40,942	182	.....	.....	258
Received since.....	11,190	95	.....	100	87
Total.....bales.	52,132	277	.....	100	345
Delivered since.....	9,210	100	.....	.....	150
Stock December 1, 1886...bales.	42,922	177	.....	100	195

Wool.—The market is comparatively quiet, and, while reports vary, sales indicate that the market is steady so far as prices are concerned. Late sales include: Spring California, 21c.; fall Texas, 20c.; XX Ohio, 38@38½c.; fine delaine, 30@40c.; ¼-fine unwashed, 32½c.; ¾-unwashed, 33c.; Oregon, 24½c.; Georgia, 32c.; fall Texas, 18½c.; fall Texas, 16@21c.; Territory, 22@23c.; scoured, 42½@65c., and medium scoured Colorado, spring Texas, fall Texas, fine super pulled, super do., extra do., No. 1 do., shearlings, unwashed fleeces, East India, domestic noils, scoured Texas and Territory, do. Territory in grease, on private terms.

A COMPANY has been organized at Hubbard, Ohio, to go into the tin-plate business. The company will be known as the Hubbard Tinning Company. It is expected that work on the buildings will be commenced at once, and their completion pushed forward as rapidly as possible.

THE Claire Furnace Company, Limited, of Sharpsville, Pa., has torn down and removed both of its old stacks and built the Lady Claire. The new furnace is 75x15½ feet, and is equipped with two 72-inch blowing engines and one 84-inch blowing-engine. The capacity will probably be about 130 tons per day. It will blow in about the first of the year.

THE Laughlin Nail Company, of Wheeling, W. Va., whose nail works, at Martin's Ferry, Ohio, were completely destroyed by fire last June, has completed its new nail factory and commenced operations. The factory is fireproof and contains 114 machines, which, in addition to the 78 machines in the old factory, makes a total of 192 nail machines operated by the company.

THE Standard Charcoal, Iron and Chemical Company, with a capital stock of \$5,000,000, has been organized at Nashville. The company is to manufacture and sell wood, alcohol, acetate of lime, iron and steel. It has purchased all rights of the patents issued to Dr. H. M. Pierce, and also his interest in the various manufactories of this character already established at Goodrich, Tenn.; Calera and Decatur, Ala., and Elk Rapids, Mich.

THE Hudson River Ore and Iron Company, Burden, N. Y., intends to experiment with roasted carbonate ore with the intention of running the furnace on as large a proportion of it as is possible. If it is found that satisfactory iron can be made by using the spathic ore alone in the blast furnace the company contemplates the erection of two modern furnaces at Burden Station. It has 6,000 tons of coal on hand, besides coke, ore and limestone, and expects to go into blast about the middle of December.

Detailed Statement of Exports of Manufactured Articles and Produce, from the Port of New York, for the Month Ended November 30, 1886.

Arrowroot, cs.....	16	Car-Wheels.....	414	Essences, cs.....	153	Hoops.....	66,720	Oat Flour, bbls.....	25	Register, cs.....	1
Aloes, bxs.....	100	Casings, pkgs.....	295	Essential Oils, cs.....	60	Hops, bs.....	174	Oatmeal, pkgs.....	100	R. Strops, cs.....	1
Axles, cs.....	1	Cassia, pkgs.....	30	Extract, bxs.....	8,486	Horns, cs.....	371	Oatmeal, bbls.....	3,500	Rivets, cs.....	1
Automatic R'way, cs.....	1	Chalk, head.....	2,550	Extinguishers, bbls.....	2	Horses.....	21	Oatmeal, lbs.....	94,780	Radiators, cs.....	5
Animal Oil, cs.....	447	Caviar, pkgs.....	347	Eye-Glasses, cs.....	2	Hose, pkgs.....	6	Oil, bbls.....	417	Rims, bbls.....	12
Air-Guns, cs.....	2	Cedar, logs.....	252	Face Plates, bxs.....	67	Household Goods, pkgs.....	587	Oil-Cake, lbs.....	9,720,018	Rice Roots, pkgs.....	2
Autophones, cs.....	65	Celluloid, cs.....	4	Emery Wheels, cs.....	18	Hubs.....	2,706	Oil-Cloth, cs.....	38	Railroad Badges, cs.....	1
Ash pcs., bundles.....	337	Cement, bbls.....	734	Engravings, cs.....	5	Hake Comp., bbls.....	50	Oil-Meal, lbs.....	55,610	Reeds, bxs.....	2
Albums, cs.....	3	Cereals, cs.....	30	Evaporated Apples, cs.....	2,479	Hand Cars.....	8	Oleomargarine, lbs.....	40,437	Rugs, pkgs.....	1
Acid, pkgs.....	3,480	Chalk, pkgs.....	23	Electric Matls., cs.....	429	Hoops, Iron.....	30	Optical Goods, cs.....	3	Rum, cks.....	32
Agricultural Impe, pkgs.....	4,311	Champagne, cs.....	409	Essence Aloes, cs.....	4	Headlights.....	30	Olives, bxs.....	23	Rye Flour, bbls.....	126
Alcohol, bbls.....	1,680	Cheese, lbs.....	2,244,468	Elastics, cs.....	2	Handle Stuffs, bxs.....	20	Onions, bbls.....	705	Saddlery, pkgs.....	54
Almanacs, cs.....	131	Cheese, pkgs.....	3,488,932	Evaporators, cs.....	25	Hives, cs.....	20	Orange Peel, cs.....	1	Salt Meat, bbls.....	50
Anise Seed, bags.....	120	China, pkgs.....	19	Enamelled Leather, cs.....	10	Houses.....	2	Organs, cs.....	589	Sails, bs.....	1
Apples, pkgs.....	16,927	Chromos, cs.....	12	Extract Beef, cs.....	553	Horse-Hair, cs.....	1	Organ Fixtures, cs.....	4	Salt, pkgs.....	320
Anatto, bbls.....	33	Cider, pkgs.....	102	Extract Duck, bs.....	31	India Rubber Gds., cs.....	516	Orc, cs.....	48	Sand, bbls.....	335
Aniline Colors, cs.....	87	Cigarettes, cs.....	258	Enamelled Shells, cs.....	7	Ink, pkgs.....	1,181	Ore, cs.....	81	Sand, tons.....	123
Agate Ware, cs.....	6	Cinnamon, pkgs.....	303	Empty Shells, cs.....	7	Iron, pkgs.....	2,930	Ore, cs.....	48	Sand-Paper, pkgs.....	225
Animals, crates.....	3	Clocks, pkgs.....	7,234	Extract Dyewood, cs.....	553	Iron, tons.....	452	Ore, cs.....	48	Sardines, cs.....	218
Aniline Salts, cs.....	6	Clothing, pkgs.....	183	Extract Logwood, cs.....	1	Iron, pkgs.....	1	Ore, cs.....	48	Sarsaparilla, bs.....	65
Almond Oil, cs.....	23	Cloves, bs.....	10	Eyelets, cs.....	457	Iron, pkgs.....	1	Ore, cs.....	48	Sausages, pkgs.....	60
Asphaltum, sacks.....	160	Clover Seed, bags.....	1,795	Fancy Goods, cs.....	75	Iron, pkgs.....	1	Ore, cs.....	48	Saws, bxs.....	152
Armor, cs.....	1	Coal, tons.....	5,286	Fans, cs.....	2	Iron, pkgs.....	1	Ore, cs.....	48	Scales, pkgs.....	682
Ash-packing, pkgs.....	5	Cocoa, bags.....	472	Feathers, bs.....	9	Ivory Nuts, pkgs.....	82	Ore, cs.....	48	School Fixtures, cs.....	132
Acorns, sacks.....	16	Codfish, pkgs.....	5,392	Felt, bs.....	100	Injectors.....	8	Ore, cs.....	48	Seeds, pkgs.....	78
Asbestos, pkgs.....	188	Coffee, pkgs.....	14,700	Fertilizers, pkgs.....	11,381	Ice Pitchers.....	8	Ore, cs.....	48	Sewing-Machine, cs.....	8,399
Awning, bales.....	16	Combs, cs.....	2	Fibre, cs.....	1,401	Instruments, cs.....	2	Ore, cs.....	48	Oil, cs.....	163
Axle Grease, cs.....	26,831	Copper, pkgs.....	100	Fig, pkgs.....	27	Incubators.....	1	Ore, cs.....	48	Shade-Rollers, cs.....	158
Baby Carriages, cs.....	3	Copper Mtls, pkgs.....	344	Fire Arms, cs.....	32	Incubators.....	1	Ore, cs.....	48	Sheep.....	329
Bacon, lbs.....	20,037,410	Copper Plates, cs.....	2	Fire Crackers, pkgs.....	4,120	Incubators.....	1	Ore, cs.....	48	Shells, pkgs.....	298
Bags, pkgs.....	121,566	Corn, bush.....	1,987,129	Fish, pkgs.....	2,472	Incubators.....	1	Ore, cs.....	48	Shingles.....	157,600
Bark Ext., pkgs.....	20	Corn Flour, pkgs.....	205	Fish Lines, bs.....	12	Incubators.....	1	Ore, cs.....	48	Shoes, cs.....	339
Barley, pkgs.....	50	Corn Meal, pkgs.....	11,221	Flavine, bxs.....	100	Incubators.....	1	Ore, cs.....	48	Shoe-Pegs, pkgs.....	873
Beans, bush.....	5,125	Corn Starch, pkgs.....	586	Fowl, cs.....	21	Incubators.....	1	Ore, cs.....	48	Shot, pkgs.....	60
Beds, pkgs.....	64	Cotton, bs.....	62,177	Frames, cs.....	1	Incubators.....	1	Ore, cs.....	48	Shooks, pkgs.....	5,054
Beef, pkgs.....	6,691	Cotton Gins, cs.....	47	Fresh Meat, tons.....	450	Incubators.....	1	Ore, cs.....	48	Shooks and Heads.....	25,204
Beer, pkgs.....	2,912	Cotton Seed, pkgs.....	1,566	Fresh Meat, qrs.....	1,681	Incubators.....	1	Ore, cs.....	48	Shoulders, lbs.....	12
Beeswax, lbs.....	1,112	Crackers, pkgs.....	200	Fruit, pkgs.....	81	Incubators.....	1	Ore, cs.....	48	Silicinate, tcs.....	10
Bellies, lbs.....	207,058	Cranberries, pkgs.....	417	Furs, bs.....	173	Incubators.....	1	Ore, cs.....	48	Silverware, cs.....	9
Belt, pkgs.....	376	Crockery, pkgs.....	40	Furniture, pkgs.....	7,059	Incubators.....	1	Ore, cs.....	48	Skins, bs.....	88
Bellows.....	12	Crucibles, pkgs.....	18	Fuse, pkgs.....	26	Incubators.....	1	Ore, cs.....	48	Shears, cs.....	2
Billiard Goods, pkgs.....	2	Curtains, pkgs.....	170	Forges, cs.....	13	Incubators.....	1	Ore, cs.....	48	Show Cards, cs.....	4
Blacking, pkgs.....	873	Curtain Fixtures, cs.....	49	Flour, bbls.....	363,713	Incubators.....	1	Ore, cs.....	48	Sad Irons, cs.....	45
Bladders, pkgs.....	44	Cutlery, pkgs.....	178	Flour, sks.....	309,118	Incubators.....	1	Ore, cs.....	48	Silk Balls, cs.....	1
Blocks, pkgs.....	44	Cumac, cks.....	780	Flour, bags.....	13,792	Incubators.....	1	Ore, cs.....	48	Sprung Skins, bbls.....	266
Bobbins, bxs.....	1	Chains, pkgs.....	4	Flour, bbls.....	363,713	Incubators.....	1	Ore, cs.....	48	Sapolo, cs.....	100
Bones, bags.....	255	Cod Oil, gals.....	1,096	Flour, sks.....	309,118	Incubators.....	1	Ore, cs.....	48	Shoe Polish, crates.....	10
Boilers.....	4	Crayon, pkgs.....	31	Flour, bags.....	13,792	Incubators.....	1	Ore, cs.....	48	Salad Oil, gals.....	657
Boiler Compound, pkgs.....	35	Canary Seed, cs.....	10	Fish, drums.....	1,941	Incubators.....	1	Ore, cs.....	48	Street Cars.....	10
Boiler Tubes.....	335	Chewing Gum, cs.....	6	Flax Seed, bush.....	16,171	Incubators.....	1	Ore, cs.....	48	Shoe Findings, cs.....	10
Books, pkgs.....	844	Cod Liver Oil, bbls.....	291	Face Powder, cs.....	35	Incubators.....	1	Ore, cs.....	48	Shoe Lacings, cs.....	1
Boots and Shoes, cs.....	195	Cod Oil, bbls.....	16,799	Filberts, bags.....	38	Incubators.....	1	Ore, cs.....	48	Soda Ash, bbls.....	1
Bottles, pkgs.....	964	Copper tubes.....	7	Fish Glue, cs.....	35	Incubators.....	1	Ore, cs.....	48	Sewing Boards, cs.....	64
Bran, pkgs.....	1,750	Clay, tons.....	4	Furniture Wood, pcs.....	11,411	Incubators.....	1	Ore, cs.....	48	Spirits, bbls.....	472
Brandy, pkgs.....	91	Canvas Cover, pkgs.....	1	Farina, bxs.....	100	Incubators.....	1	Ore, cs.....	48	Sumac, bags.....	350
Brass Goods, cs.....	30	Cocanuts, sks.....	747	Fish Oil, cs.....	1,320	Incubators.....	1	Ore, cs.....	48	Straw Goods, cs.....	338
Bread, pkgs.....	178,625	Cuspidors, cs.....	2	Flint, pkgs.....	86	Incubators.....	1	Ore, cs.....	48	Sweet Oil, bbl.....	1
Bricks.....	60,500	Car Oil, gals.....	494	Fur Waste, bs.....	6	Incubators.....	1	Ore, cs.....	48	Sisal Grass, bs.....	2,063
Britannia Ware, cs.....	50	Capsules, cs.....	1	Fruit Jars.....	183	Incubators.....	1	Ore, cs.....	48	Steel Wheels.....	3
Broom-Corn, bs.....	199	Coffins, cs.....	49	Fire Bricks.....	15,529	Incubators.....	1	Ore, cs.....	48	S. Trucks.....	63
Bulbs, cs.....	130	Coffin Mats, cs.....	58	Fishing Boots, cs.....	27	Incubators.....	1	Ore, cs.....	48	Skewers, bbls.....	493
Bunga, bbls.....	378	Caus. Soda, drums.....	167	Garters, cs.....	2	Incubators.....	1	Ore, cs.....	48	Spruce Poles.....	200
Butter, lbs.....	526,940	Cover Stems, sks.....	500	Gas Fixtures, cs.....	56	Incubators.....	1	Ore, cs.....	48	Stalpur, cs.....	2
Butterine, lbs.....	2,247	Cord, yds.....	2,229	Gasoline, gals.....	17,873	Incubators.....	1	Ore, cs.....	48	Stencil Goods, pkg.....	1
Buttons, cs.....	18	Copper, casks.....	3,249	Glass, Plate, cs.....	4	Incubators.....	1	Ore, cs.....	48	Stoneware, crates.....	2
Building Materials, cs.....	8	Charts.....	2	Glass, Picture, cs.....	2	Incubators.....	1	Ore, cs.....	48	Salt Soda, bbls.....	173
Borax, bbls.....	11	Cab. Mats, sks.....	2,143	Glassware, pkgs.....	1,062	Incubators.....	1	Ore, cs.....	48	Stair Fixtures, cs.....	7
Baking-Powder, pkgs.....	11	Cartons.....	2	Glue, pkgs.....	59	Incubators.....	1	Ore, cs.....	48	Skins, csks.....	61
Barrows.....	208	Capers, cs.....	80	Grapes, pkgs.....	160	Incubators.....	1	Ore, cs.....	48	Stones, cs.....	61
Bristles, pkgs.....	2	Clay Oil, gals.....	107	Grapes, bbls.....	1,180	Incubators.....	1	Ore, cs.....	48	Saltpetre, bbls.....	50
Brushes, cs.....	64	Coal tubes.....	8	Grape Sugar, pkgs.....	2,435	Incubators.....	1	Ore, cs.....	48	Soap Grease.....	1,352
Box Shooks, bbls.....	581	Caligraphs, cs.....	2	Grass Seed, bags.....	970	Incubators.....	1	Ore, cs.....	48	Sulphur Copper, cs.....	27
Bagging, bs.....	24	Dates, pkgs.....	60	Grease, lbs.....	905,493	Incubators.....	1	Ore, cs.....	48	Soda-Water Fountain.....	1
Banastone, bbls.....	6	Dental Mtls, pkgs.....	56	Grindstones, pkgs.....	11,777	Incubators.....	1	Ore, cs.....	48	Soup Paste, bxs.....	1,801
Bananas, bxs.....	200	Dessicated Cocoa, nut, pkgs.....	110	Groceries, pkgs.....	466	Incubators.....	1	Ore, cs.....	48	Stereoscopes, cs.....	1
Bunting, bs.....	2	Domestics, pkgs.....	7,728	Gum, cs.....	142	Incubators.....	1	Ore, cs.....	48	Sea-Oats, cs.....	22
B Sprinklers, cs.....	14	Doors, No.....	4,012	Guts, bbls.....	100	Incubators.....	1	Ore, cs.....	48	Sulphur, bbls.....	5
Billiard Balls, cs.....	15	Drain Pipes, pcs.....	205	Glass Signs, cs.....	3	Incubators.....	1	Ore, cs.....	48	Soda Water Materi- als, pkgs.....	5
Butter Color, bbls.....	3	Dried Apples, pkgs.....	11,511	Ginger Ale, cs.....	62	Incubators.....	1	Ore, cs.....	48	Shawls, cs.....	7
Bay Bark, bs.....	5	Dried Fish, pkgs.....	14,050	Gun Primers, cs.....	1	Incubators.....	1	Ore, cs.....	48	Saw Mill.....	1
Bronze, cs.....	4	Dried Fruit, cs.....	1,959	Gutta Percha, pkgs.....	10	Incubators.....	1	Ore, cs.....	48	Stout, bbls.....	7
Buckwheat flour, cs.....	12	Dried Grasses, cs.....	34	Gum Copal, cs.....	21	Incubators.....	1	Ore, cs.....	48	Silver of Soda, bbls.....	7
Bird Cages, cs.....	1	Dry Goods, pkgs.....	208	Goats Hair, bs.....	5	Incubators.....	1	Ore, cs.....	48	Sulph. Magnesia, bags.....	800
Brass Prints.....	6,420	Drugs, pkgs.....	5,687	Goats' Skins, cs.....	2	Incubators.....	1	Ore, cs.....	48	Smelts, bxs.....	8
Hitters, btl.....	39,500	Dye-stuffs, cks.....	105	Granite, cs.....	57	Incubators.....	1	Ore, cs.....	48	Sealskins, cs.....	956
Buggies.....	3	Dyewoods, pkgs.....	275	Grits, bbls.....	50	Incubators.....	1	Ore, cs.....	48	Straw, bs.....	29
Boats.....	3	Demijohns.....	392	Glycerine, bbls.....	550	Incubators.....	1	Ore, cs.....	48	Stubble Blocks, cs.....	35
Brake Materials, pcs.....	4,200	Drawing Apparatus, cs.....	53	Guano, bbls.....	17	Incubators.....	1	Ore, cs.....	48	Steel Segments, cs.....	4
Buffalo Robes, cs.....	1	Dynamite.....	200	Guano, sks.....	100	Incubators.....	1	Ore, cs.....	48	Sheaths, cs.....	1
Bone, manufactures of, cs.....	11	Dies, cs.....	1	Gunpowder, lbs.....	100	Incubators.....	1	Ore, cs.....	48	Steel Manufactures, pkgs.....	75
Cabbages, pkgs.....	300	Drawing Instru- ments, cs.....	1	Gas Stoves.....	2	Incubators.....	1	Ore, cs.....	48	Sweepers, cs.....	5
Cages, cs.....	8	Dusters, cs.....	18	Gun Senegal, sks.....	2	Incubators.....	1	Ore, cs.....	48	Sweet, cs.....	1,313
Cane, pkgs.....	9	Drug Ware, cs.....	388	Hair, pkgs.....	155	Incubators.....	1	Ore, cs.....	48	Slate-Pencils, cs.....	123,341
Candles, pkgs.....	9,304	Dried Flour.....	82	Hams, lbs.....	1,819,470	Incubators.....	1	Ore, cs.....	48	Sleigh.....	1
Candy, pkgs.....	307	Dairy Goods, cs.....	17	Hammocks, cs.....	594	Incubators.....	1	Ore, cs.....	48	Soap, pkgs.....	112,112
Canned Goods, cs.....	7,533	Drums.....	432	Handspikes.....	7,526	Incubators.....	1	Ore, cs.....	48	Soap Stock, tcs.....	958
Cards, cs.....	1	Divi Divi, bags.....	33	Hardware, pkgs.....	51	Incubators.....	1	Ore, cs.....	48	Soup-Paste, bxs.....	184
Carriages.....	175	Effects, cs.....	201	Harness, pkgs.....	106	Incubators.....	1	Ore, cs.....	48	Spelter, slabs.....	6,607
Carriage Materials, pkgs.....	1,101	Eggs, pkgs.....	115	Hay, bs.....	203,480	Incubators.....	1	Ore, cs.....	48	Spermaceri, lbs.....	23,655
Cartridges, cs.....	967	Electro Plate, cs.....	13	Heads, cs.....	471	Incubators.....	1	Ore, cs.....	48	Sperm Oil, gals.....	1,770
Cars.....	3	Empty Barrels.....	2,204	Hides.....	179	Incubators.....	1	Ore, cs.....	48	Spices, cs.....	64
Carts.....	3	Empty Cases, cs.....	1,245	Hogs.....	368	Incubators.....	1	Ore, cs.....	48	Spikes, kegs.....	15
Car Fixtures, cs.....	442	Empty Casks, No.....	747	Hominy, pkgs.....	580	Incubators.....	1	Ore, cs.....	48	Spirits Turp., gals.....	32,597
		Empty Carboys, cs.....	300	Honey, pkgs.....	102	Incubators.....	1	Ore, cs.....	48	Spirits Turp., bbls.....	107
		Empty Hogheads.....	300	Honey, bbls.....	2,845	Incubators.....	1	Ore, cs.....	48	Sponges, bbls.....	48
		Enamelled Cloth, cs.....	5			Incubators.....	1	Ore, cs.....	48	Stamped Ware, cs.....	6,782
						Incubators.....	1	Ore, cs.....	48	Starch, pkgs.....	6,782

Exports of Manufactured Articles and Produce, from the Port of New York—Continued.

Stationery, pkgs.	912	Tar, pkgs.	715	Toilet Preparations, cs.	12	Trunk Mtls., pkgs.	86	Vials, cs.	1	Waste, bs.	134
Statuary, pkg.	1	Tarpaulins, bs.	3	Tongues, pkgs.	952	Truss Hoops, bdls.	21	Wagons.	5	Woodenware, pkgs.	3,444
Staves	295,272	Tea, pkgs.	156	Toys, cs.	250	Tube Cleaners, bbl.	1	Walnut, logs	1,506	Wine, pkgs.	78
Stearine, lbs.	73,023	Telegraph Mtls., pkgs.	110	Tree Seed, sks.	2	Twine, pkgs.	197	Walnut, pcs.	5,785	Wood, bdls.	1,296
Steel, pkgs.	115	Telephones, cs.	6	Trees and Plants, pkgs.	699	Type, cs.	4	Water Casks.	18	Wood Pulp, pkgs.	22
Steel Plates, sheets.	17	Thimbles, cs.	1	Trees, bs.	3	Technicians, cs.	20	Watches, pkgs.	435	Wood Pulp, sks.	1,063
Sticks, cs.	6	Thread, cs.	3	Traveling-Bags, cs.	2	Tortoise Shell, cs.	4	Watch Materials, cs.	6	Walnut Seed, bbls.	30
Stoves, cs.	50	Tin, pkgs.	100	Torches, pkg.	1	Torpedoes, bxs.	21	Wax, pkgs.	6,945	Wagon Materials, cs.	78
Stove Polish, pkgs.	550	Tin foil, cs.	6	Topmasts.	2	Turn Buckles, cs.	6	Whalebone. lbs.	24,803	Whiting, bbls.	29
Sugar, pkgs.	28,616	Tinware, lbs.	84,126	Tender.	1	Transit	1	Whale Oil, gals.	50	Whips, cs.	6
Sugar Mill.	1	Tobacco, bs.	2,026	Telescopes, cs.	2	Umbrellas, cs.	2	Wheat, bush.	2,171,576	Watch-Chains, cs.	1
Surgical Instrum'ts, cs.	5	Tobacco, pkgs.	47,685	Table Ware, cs.	1	Undertakers' Mtls.	5	Wheels	28	Whiskey, pkgs.	365
Syringes, cs.	28	Tobacco, hhd's	15,336	Tea Mats, bs.	3	Valvoline, gals.	750	Wheels, cs.	8	Wire Goods, pkgs.	72
Syrup, pkgs.	4,527	Tobacco Liqueur, cs.	9	Tiles, bxs.	41	Valises, cs.	1	Wheels in pieces, cs.	324	Wheelbarrows.	100
Surveying Instrum'ts, cs.	1	Tobacco Extract, cs.	121	Tonka Beans, cs.	2	Vaporizers, cs.	3	Wood Mfrs., cs.	13	Whitewood, pcs.	2,544
Sugar Wagons.	171	Tobacco, Manufactured, lbs.	356,185	Traps, pkgs.	2	Varnish, gals.	1,678	Windows, cs.	4	Wicks.	232
Tacks, pkgs.	560	Tobacco Stems, pkgs.	65	Teasles, cs.	6	Velocipedes, pkgs.	16	Waste Comp., bags.	34	Water Closets, pkgs.	16
Tallow, lbs.	3,264,540	Toilet Ware, cs.	27	Timothy Seeds, bags.	530	Vegetables, pkgs.	325	Washing Machines, cs.	37	Wool, bs.	974
Tallow Oil, tcs.	1,837	Tombstones, pkg.	1	Traffail Logs.	4	Veneer, cs.	17	Wringers, cs.	109	Wool Waste, bs.	35
Tanks.	4			Trucks, pkgs.	123	Vermouth, gals.	532	Wall-Paper, cs.	9	Wind Gate	1
Tank Mtls., pkgs.	128			Trunks, pkgs.	1,208	Vinegar, pkgs.	214	Window Glass, cs.	3,484	Water-Wheel	1
						Vitriol, cs.	20	Wind Mills	48	Zinc, lbs.	1,146
										Zinc, drms.	2

General Notes.

THE oldest iron-ore mine in the United States that is now in operation is the Iron Hill Mine, in Delaware, which was discovered as early as 1684, and soon afterward opened. Ore is still taken from this mine, and used in Principio Furnace, Maryland, the first stack for which furnace was built in 1723.

A HUGE iron reservoir is being built at a remote spot in the outer harbor of Amsterdam for the storage of petroleum. It will be nearly 33 feet in diameter and of the same depth, and is calculated to hold nearly 1,740,000 gallons. The petroleum will be brought direct from Russia in vessels specially constructed.

THE electric-light installation on the heights of Siddul Bahar, at the entrance of the Dardanelles, has been completed, and has given so much satisfaction to the military authorities that further apparatus of a similar kind has been ordered for the other fortresses which command the different bends of the channel up to Nagara.

A GREAT crisis has come about in the Russian sugar trade, and a special commission has been sitting on the subject. The government has given such an impulse to overproduction by bounties and emoluments that a large number of sugar manufacturers cannot now place all their stocks on the foreign market, and are threatened with complete disaster and ruin.

IT is announced that an extensive plantation of olive-trees is to be established in Solano County, Cal. The growing of olives and the manufacture of oil have already passed beyond the experimental stage. In San Diego and Santa Barbara counties, in particular, olives have been grown for several years at a very handsome profit, while the California olive-oil is noted for its excellent quality and freedom from adulteration.

FOR some time the Prussian State Railway Administration, which had begun to discard wooden sleepers for iron sleepers, has been reverting to the old system, and experiments have lately been made with sleepers of beech wood. One reason for making these experiments is to take advantage of the timber grown in the forests at home, by using which a great saving is effected. Several contracts for wooden sleepers have of late been given. The iron trade naturally observes this act of retrogression with alarm.

UNTIL lately all mirrors manufactured in the United States have been made from imported glass. The quality of the glass to retain the silvering and give a perfect production of the object must be of the best. This quality Pittsburg had never been able to produce until natural gas came into use. Now, by its aid, the fineness of the glass produced rivals that of the imported article. The entire absence of impurity, the perfect fusing of the ingredients, the rapidity of the melting and the pure, intense flame for reheating or working are the principal advantages.

THIRTY-FIVE years ago a man named William Clarke went to Pittsburg and attempted to make window glass by rolling it in reversible rolls, such as were used to roll iron and steel. The attempt was a dismal failure, the glass cooling so fast as it passed through the rolls that it became too brittle for use. Now natural gas comes to the rescue and makes the scheme practical. A well-known Pittsburg in-

ventor has filed an affidavit of priority to an invention which promises to go a long way toward revolutionizing the window-glass business, it is claimed. He proposes to make sheets or plates of glass in reversible rolls ten times as rapidly as they can be made by the present method of rolling plate-glass. The rolls will be set stationary and will be hollow. A natural-gas pipe, with jets on all sides, will run through the centre of each roll and keep it constantly heated. The glass will be caught as it comes through the rolls on an iron plate, also constantly heated by gas. It will be run along this plate straight to the annealing oven, so that at no time during the process will it have a chance to cool. The invention will dispense with blowing in making window glass.

A NOVEL method of measuring the deflection of railway bridges has been tried in Russia. An iron pipe 1½ inch in diameter was carried along the outside of one girder. From this pipe, at each abutment at the pier, and at five intermediate points on each span, vertical pipes of the same diameter branched out. Inside and near the top of each vertical pipe was fixed a graduated ¾-inch glass tube, the iron pipe being cut away on both sides. The zero divisions on the tubes were all the same distance above the flange of the girder. Before the bridge was loaded the apparatus was filled with water, the tops of the upright pipes covered over, and the water was then drawn off until it stood at zero in each gauge. On the bridge being loaded the deflection could be read with ease.

THE Leadville *Herald-Democrat* says: "An analysis of many thousand tons of flue-dust showed its composition to contain the following: Silver, from 20 to 37 ounces per ton; lead, from 20 to 30 per cent.; gold, from trace to ¾ ounce per ton; zinc, from ½ to 9 per cent.; arsenic, from trace to 1½ per cent.; silica, from 18 to 27 per cent.; iron, from 11 to 25 per cent. At the Arkansas Valley smelter this dust is worked with water and slacked lime, is mixed and made into bricks in a pug-mill, similar to those in use at a brick-yard. The place in which the work is done is surrounded by a brick wall, to prevent the interference of the winds, as the material is very light. The dust-bricks are sun-dried and again fed into the large furnaces."

THE Société d'Encouragements, at Paris, offers a prize of 1,000 to 3,000 frs. for a transmission of power over large distances. Also a prize of 5,000 frs. for a 25 to 100 horse-power motor using not over 6 kilogs. steam per horse and hour at continuous work, and which has been tried for at least six months, the simplest and cheapest machine to take the prize; also a 3,000 frs. prize for an apparatus indicating at a distance the temperature of a heated room; it must be simple in construction, of moderate cost, and the degrees of heat to be simply read off from a scale without requiring any special manipulation.

GLASS manufacturers are interested in some experiments conducted by the Chicago Glass Manufacturing Company in the use of a Siemens glass-melting furnace, with open pots, for flint glass. This is the first attempt to melt flint glass in open pots for the Siemens furnace, and only the second to use open pots for this kind of glass. The first attempt was made by Berger Brothers, of Philadelphia, but they ultimately returned to closed pots. It is claimed that the new process will melt glass in seven hours and forty-five minutes, while the old-fashioned furnaces take from fifteen to twenty-four hours. Thus a great saving of fuel is effected.

Business Notices.

THE New York Fireproof Paint Company, 65 Maiden lane, New York, U. S. A., invites attention to the "Vulcan" paint and sotèria, which are guaranteed to be fireproof in character when applied to woodwork and preservative of wood from decay. Sotèria will give perfect security to all rough interior surfaces, as floor beams, lathing, &c., and is specially applicable to interior surfaces. The "Vulcan" paint is more particularly designed for exterior use. These paints are not intended for use on metal, but on wood, for which their fire-resisting qualities peculiarly adapt them. They not only retard but prevent the spread of a conflagration. The company has been favored with many satisfactory testimonials by parties who have made use of these safety agents, and it invites correspondence from all persons needing the protection which these paints afford.

THE Pacific Iron Works (Rankin, Brayton & Co.) were founded in 1850, and the general works and shop are located at San Francisco, Cal., U. S. A., with a branch at 145 Broadway, New York, U. S. A. This company manufactures machinery for the reduction of gold, silver, lead and copper, by milling, smelting and concentrating, and furnish plans and estimates of cost on gold and silver stamp mills, batteries, amalgamating pans, &c. It also manufactures all sizes of high-speed crushing rolls, the "Pacific" rotary dry kiin, the Duncan concentrator, pumps and pumping appliances, Baker horse-whims, "Cornish" pumps, automatic cut-off engine, Corliss pattern, &c. It also furnishes experienced machinists to set up and put in working order machinery built by it. Illustrated catalogues in English and Spanish forwarded on application.

THE biscuits of the Van Derveer & Holmes Biscuit Company, corner of Washington and Hubert streets, New York, U. S. A., are known not only in this country but in many others. Its celebrated crackers have already had a wide distribution in foreign lands, and the goods to which the company calls especial attention in this number of THE MAIL are those which are put up especially for South American markets. They are packed in excellent shape, are of the best material and are made in a great variety of styles. On request the company will forward export price-list.

"How to Keep Boilers Clean" is the title of an eighty-eight page illustrated book which you can obtain free by addressing James F. Hotchkiss, 93 John street, New York, U. S. A. Mr. Hotchkiss is the manufacturer of the Hotchkiss mechanical boiler cleaner, which can be used on flute, tubular, marine and other boilers, and which is simple, durable and effective. It removes mud, oil and lime, prevents foaming, burning and scaling, and saves labor, repairs and fuel, and is adapted to the use of river, pond, spring, well, mine and other water.

FOUNTAIN pens have come largely into use since the improvements which have been made of late years have been perfected. Among the numerous pens of this class in the market the Harvard pen claims special attention. It is made of hard rubber and is supplied with a gold pen to which the ink contained in the barrel feeds automatically. There is nothing to corrode in this pen and its action is smooth and easy. The manufacturer is the Harvard Pen Company, 152 Broadway, New York, U. S. A.

THE export agents for American paper manufacturers are Woolworth & Graham, Tribune Building, New York, U. S. A. They invite correspondence from responsible houses abroad and are prepared to fill orders for all grades of papers in any quantity desired. News-paper in sheets or rolls, book and lithograph papers, writing, ledger and bond papers, wrappings, blottings, tissues, bristols, press or binders' boards of all grades.

PRESSES for baling different commodities are useful machines in any country. J. Harris Balston, Greenpoint, Kings County, New York, U. S. A., manufactures presses for compressing and baling hay, hair, hemp, hides, straw, cloth, paper, rags and all other articles for which such machines are available. Foreign buyers are invited to investigate the merits of these machines.

PARTICULAR attention is given to export orders for cordage by William Wall's Sons, 113 Wall street, New York, U. S. A., who manufacture manila, sisal, jute and tarred cordage and oakum. They warrant all cordage from their works to be pure.

THE Nashville Lumber Company, Nashville, Tenn., U. S. A., invites correspondence from buyers of lumber. It manufactures soft yellow poplar lumber and all dressed and matched stock.

YOUNG & SONS, 43 North Seventh street, Philadelphia, Pa., U. S. A., are manufacturers of engineering, mining and surveying instruments. Parties standing in need of fine tools of this character are invited to address the firm as above mentioned.

BUYERS of corn-shellers and of corn and feed mills for hand or power are invited to correspond with A. W. Stevens & Son, Auburn, N. Y., U. S. A., who make a specialty of the manufacture of portable mills of the class mentioned. Special prices quoted for export.

"THE best and cheapest in the world" is what Cooke & Co., 22 Cortlandt street, New York, claim for their sugar mills. Full particulars as to the mills, their construction, cost, &c. can be had by addressing this firm and mentioning THE AMERICAN MAIL AND EXPORT JOURNAL.

THE Sarven, Warner and Kenney patent wheels, as well as all the usual styles of wheels, are manufactured by the New Haven Wheel Company, New Haven, Conn., U. S. A. This company gives special attention to export orders and invites those needing such articles to send for price-list.

PURCHASERS of fine silver-plated ware are invited to address J. A. Babcock, 71 John street, New York, U. S. A., who manufactures a varied line of goods of elegant design, plated on hard white metal. Mr. Babcock manufactures for the trade and invites buyers to send for his quotations and price-list.

DRIVEN wells are great institutions and are coming into use the world over. It is important to have a good "well-point" in every driven well. R. R. Rouse, Indianapolis, Ind., U. S. A., makes a patent electro-plated well-point, which is strong and durable. It is a heavy point and has great capacity.

THE Revere Rubber Company, Boston, Mass., U. S. A., has its factories equipped with new machinery, which is in successful operation, manufacturing rubber goods for mechanical purposes. This company manufactures the patent stitched and seamless "Giant" belting which has found so much favor. Write for catalogue.

SAMUEL LEES & Co., 63 Broadway, New York, U. S. A., are sole export agents for the compound magnetic kidney belt and other magnetic curative appliances. The same firm has the sole agency for the dentaphone, which enables deaf people to hear perfectly. Illustrated catalogues may be had by addressing the firm as above mentioned.

FOOT and hand power machinery is available in every country, or in localities where steam or other power cannot be had. The W. F. & John Barnes Company, Rockford, Ill., U. S. A., makes a large line of machines available for hand or other power, including scroll saws, circular saws, mortises, lathes, drilling machines, &c. Correspondence is solicited.

BROWN, BROTHERS & Co., Providence, R. I., U. S. A., are manufacturers and dealers in all kinds of supplies for cotton and woolen mills. Anyone desiring information as to their goods can obtain the same by applying to them for descriptive catalogue and price-list. Their lines embrace belting, lacing, belt hooks, ring travelers, shuttles, reeds, pickers, bobbins, cap-tubes, baskets, banding, &c.

GEORGE H. SANBORN & SONS, 69 Beekman street, New York, U. S. A., are large manufacturers of bookbinders', printers', lithographers' and paper-box makers' machinery, their line embracing stamping-presses, embossing-presses, paper-cutters of all sizes for hand or power, as well as a large assortment of miscellaneous articles for use in the trades before mentioned. They will send catalogues of their lines on application.

F. W. DEVOE & Co., New York, U. S. A., are prepared to furnish everything in the color line, whether for house or artist work. They are large manufacturers of prepared house paints, varnishes, colors, dry or in oil, brushes, engineers' instruments, carriage and railway colors, &c. In order to give the most assistance to those desiring to deal with them, they have prepared special catalogues for the different lines and will be pleased to furnish any or all of them upon application. The firm is in the front rank in its line, and has the facility for filling orders promptly and to any extent.

HAY-RAKES, corn-shellers, feed-cutters, wheat-mills, cider-mills, horse-powers, and a variety of other farming tools and implements are manufactured by the Hocking Valley Manufacturing Company, Lancaster, Ohio, U. S. A. These tools are guaranteed to be first class. Foreign buyers are invited to write for descriptive circulars and prices.

WIRE goods for household use have become deservedly popular, and the pioneers in the manufacture of these goods are Woods, Sherwood & Co., Lowell, Mass., U. S. A. Their line is one of great variety, embracing both useful and ornamental goods, such as strainers, broilers, dish-drainers, teapot stands, sponge baskets, toasters, easels, and many other utilities. The goods put out by this firm are pretty, useful and lasting.

THE anti-friction roller-chain belting manufactured by the Roller-Chain Belting Company, Columbus, Ohio, U. S. A., is detachable in every link and is designed for improved elevators, conveyors and driving-belts. Roller-chain elevators will not slip or clog and are strong and durable. This company is also a large manufacturer of Legg coal-mining machines and rotary power coal-drill. Readers of **THE MAIL** are invited to send for illustrated circular.

THE Massey Manufacturing Company, Toronto, Ont., Canada, is the manufacturer of harvesting machinery of the best repute. Its mowers are standard machines, and characterized by strength, durability and lightness. Its harvesters combine like features of capacity. These machines are made with the greatest regard to efficiency in all of their details. Nothing about them is slighted, and the company invites careful inspection of all of the points of its machines, which include several not mentioned.

THE H. E. Pratt Paper Company, 140 Nassau street, New York, U. S. A., has put on the market a new letter-copying book known as the "Chadwick." The corners of the pages and the back of the sheets are waterproof, so that the moisture does not interfere with turning the pages or in any way injure the binding. A moistening pad is provided, by the use of which any number of sheets may be moistened and kept in that condition ready for service whenever required, the moisture being uniform, a result which it is not possible to obtain by the use of the ordinary brush.

FOUR gold medals were taken at the New Orleans Exposition by the Simonds Manufacturing Company, Fitchburg, Mass., U. S. A., and Chicago, Ill., U. S. A., for goods manufactured by it. One of its specialties is the "Simonds" saw inserted point, which gives better bearing for point, good clearance for sawdust, more wear to point, and which runs equally well in frozen timber. The point is easily inserted or removed. This company also manufactures circular saws, solid or inserted point, cross-cut saws, milled tooth-band saws, planing-machine knives and paper-cutting knives.

THE Hitchcock mechanical lamp burns without a globe or chimney. Combustion is created by a fan driven by clockwork, which forces the air into the flame, giving a white, steady light of eighteen candle-power. The lamp burns eight hours without rewinding. It does not smoke, does not emit any odor, there is no danger and it is said it cannot explode. It will stand sudden blasts of wind and will work equally well in warm or cold climate. F. H. Lovell & Co., 231 and 233 Pearl and 118 John streets, New York, U. S. A., are the sole agents for this lamp, besides being manufacturers of lamp ware, glass-ware and brass goods of every description.

THE Joshua Hendy Machine Works, 39 to 51 Fremont street, San Francisco, Cal., U. S. A., are manufacturers of specialties in mining and milling machinery, and are prepared to submit plans and estimates of cost for gold and silver stamp mills, smelting furnaces, mining cars, all kinds of machinery for hydraulic mining, &c. Among their special manufactures are hydraulic mining, quartz and saw mill machinery, hydraulic gravel elevators, hydraulic giants, "Triumph" ore concentrators, automatic ore feeders, &c. They are sole agents on the Pacific Coast for a number of celebrated engines, pumps, boilers, blowers, &c., and are at all times prepared to furnish skilled mechanics to set up and put in working order all machinery constructed by them. Those interested in these lines are invited to correspond with the firm, who will be pleased to furnish full information as to their various lines.

THE "Cleveland" stand lamp is made by the Lamp and Brass Works of W. J. Gordon, Cleveland, Ohio, U. S. A., and gives a white, sweet, steady light. It is made of pure bronze metal, is simple, safe, clean, durable, and the fonts can be used in old or new styles of hanging fixtures. The "Orient" double cluster combines three of these lamps in a group under a 14-inch dome-shade and having one reservoir. The lamp is especially adapted for stores, churches, dining-rooms, saloons, &c. Circulars and special prices will be furnished to exporters and jobbers on application. This same company is a large manufacturer of Student lamps, both single and double, gas fixtures and specialties in brass and bronze.

THOSE who are using machinery or heating apparatus are interested in knowing where to get supplies upon which reliance can be placed. The McNab & Harlin Manufacturing Company, 56 John street, New York, U. S. A., manufactures brass cocks and valves for steam, water and gas service. Besides these it makes iron valves, pipes and fittings, plumbers' materials of all kinds, seamless brass and copper tubes, &c. Upon application it will send illustrated catalogue and price-list, and will be pleased to furnish any other information concerning its wares which may be required.

THE firm of Peter Henderson & Co., seedsmen and florists, 35 and 37 Cortlandt street, New York, U. S. A., is known far and near in connection with the line of business in which the house is engaged. American seeds possess greater vitality than those raised in other countries, and have always given the most satisfactory results when sown in warm climates. Henderson's seeds are all tested before selling, and as prices are attractive, buyers will do well to inspect the stock of this firm. New wholesale price-lists are now ready and will be mailed on application.

AMERICAN agricultural machinery has won its reputation all over the world, and among the firms engaged in the manufacture of this class of work is P. K. Dederick & Co., Albany, N. Y., U. S. A., who make a specialty of presses of all kinds, such as for hay, straw, hemp, flax, moss, hop, cotton, rag, wool, cloth, yarn and paper. During the last twenty-eight years this concern has produced three-fourths of all the baling-presses manufactured in the world, and Mr. Dederick was the original inventor of the continuous baling-press.

FOR the past twenty years the United States Net and Twine Company, 210 Fulton street, New York, U. S. A., has been in business manufacturing cotton and linen netting for all purposes. The goods made by this house are varied, and are fully described in a catalogue which will be forwarded upon application. The line embraces seine twines, lines, cords and ropes of every description, fish-nets, pounds, seines, &c., machine and hand made nets and netting of all kinds.

THE "Paragon" front-lever paper-cutting machines are made by Edward L. Miller, 328 Vine street, Philadelphia, Pa., U. S. A. These machines are strong at all points, with powerful leverage, wide bearings, true gauges, and all the working parts closely fitted, thus insuring accurate work. The tables are marked in lines and squares and have front and back measuring rules. They are furnished with back and side gauges and squaring gauges for small work.

THE attention of buyers of jewelry is called to the products of the manufacturing house of Fred. I. Marcy & Co., Providence, R. I., U. S. A. This firm makes fine rolled gold-plated jewelry, consisting of sets, bar-pins, ear-rings, cuff-buttons, bracelets, &c. It has a number of specialties, among which may be named the Acme lever sleeve-button, which is readily inserted in or removed from the cuff.

THE Nordyke & Marmon Company, Indianapolis, Ind., U. S. A., does all kinds of millwrighting and mill-furnishing work. It makes a specialty of fitting out flour mills and manufactures a line of machinery of improved pattern. Its grinding mills are specially noteworthy. This firm has lately taken a \$42,000 contract for fitting out a mill in New Zealand.

THE improved standard "Boss" churn, manufactured by McDermid & Allen, Rockford, Ill., U. S. A., is offered solely on its merits. This churn is not an experiment but is in use in every part of the United States. It saves labor; improves, by protecting the globules, the quality of the butter; produces a full quantity; works easily, and enables the butter to be readily handled. This churn is durable and

well finished. Further particulars may be had by addressing the manufacturers.

FOREIGN buyers of paper can address Henry M. Robertson, 319 Broadway, New York, U. S. A., for samples and quotations of all kinds of paper. Mr. Robertson will fill orders for goods packed at the mills and shipped direct.

THE Beethoven Piano-Organ Company, Washington, Warren County, N. J., U. S. A., makes a specialty of the manufacture of organs for export. This company will concede agencies for its instruments in different parts of the world, and invites correspondence.

OWNERS of stamping mills and mining plants are invited to take notice of the advertisement of the Chrome Steel Works, Brooklyn, N. Y., U. S. A. The "Adamantine" shoes, dies and crusher plates made by these works are warranted not to "cup" and the shoes will not break at the shank.

THE Abbott Buggy Company, of Chicago, has recently placed upon the market a steel-gear buggy, which can be used in any part of the world. It is adapted to any climate, made strong, durable and so constructed that it cannot wear out. Write to the manufacturers for all particulars and prices.

IN the manufacture of inks, writing fluids, carbon papers and the like, the firm of J. Underwood & Co., 30 Vesey street, New York, U. S. A., has acquired a reputation and prominence. Its inks have been sold in various parts of the world for years past, and buyers are invited to send for price-list.

COTTON-CLEANING machinery, of the most approved form, is produced by the Brown Cotton-Gin Company, New London, Conn., U. S. A. This firm manufactures cotton-gins, self-feeders and condensers for steam-power and also gins arranged for hand or horse power. Parties wanting such machinery are invited to address the company.

THE new "O. K." job-printing press, manufactured by the Kelsey Press Company, Meriden, Conn., U. S. A., is a heavy, strong and durable machine. Parties wishing to buy presses of this character are invited to confer with the manufacturer. This house also manufactures other styles of job presses, besides amateur outfits, &c.

WEBSTER'S Unabridged Dictionary is known the world over, and the latest edition of the work contains 118,000 words and 3,000 illustrations. It has a supplement of new words and meanings, a biographical dictionary, and a new pronouncing gazetteer of the world. It is published by G. & C. Merriam & Co., Springfield, Mass., U. S. A.

BUYERS of wool-washers, burr-pickers and machinery for the preparation of wool are invited to address Charles G. Sargent's Sons, Graniteville, Mass., U. S. A., and secure illustrated catalogue. This house occupies a leading position in the manufacture of machinery adapted to the preparation of wool, in the manufacture of textile fabrics, &c.

FINE leather dressings command a ready market wherever finished leather becomes an article of consumption. Buyers seeking a superior article in this line are invited to address Whittemore Brothers & Co., Boston, Mass., U. S. A., who make and export all kinds of dressings, blackings, liquid polish, &c., for shoes, harness, and all kinds of leather.

C. F. FRASCH & Co., manufacturers of show-cases, 175 Park row, New York, U. S. A., keep on hand, or will make to order, show-cases of the most improved designs in wood, metal and celluloid. These cases are fitted with plate-glass panels, and are of the highest order of workmanship. Parties desiring further information should address the firm.

THE Phelps & Bigelow Windmill Company, Kalamazoo, Mich., U. S. A., manufactures the IXL windmill and all kinds of goods connected with pumping and power mills for raising water or running light machinery. This firm has had thirteen years' experience in the manufacture of wind-engines, and its goods are widely sold in this and other countries.

MERWIN, HULBERT & Co., 83 Chambers street, New York, U. S. A., manufacture the automatic revolvers, with folding hammers, which have been adopted by the police departments of a number of large cities. These revolvers are made for the pocket or to carry in a belt; pocket sizes are also made, with an interchangeable long barrel, for belt use. Address the firm for further particulars.

ALL kinds of laundry machinery can be had of Oakley & Keating, laundry engineers, &c., 40 Cortlandt street, New York, U. S. A. This firm makes a specialty of the production of laundry machines and has been known for many years as one of the leaders in this line of manufacture. Laundrymen and buyers of machinery are invited to address the firm.

BRAIDING-MACHINES for making all kinds of braids—flat, round, square and fancy—are manufactured by the Rhode Island Braiding-Machine Company, Providence, R. I., U. S. A. This house will also manufacture to order machines for new styles of braids. It keeps constantly on hand all kinds of braider supplies, including bobbins, carriers, tension weights, &c.

FURNISHING reports of the commercial standing of business houses in America and the prompt collection of past due accounts has developed largely during recent years. Firms in foreign countries requiring such services can safely intrust them to E. C. Ferguson, attorney-at-law, 94 La Salle street, Chicago, Ill., whose branch connections are established in all parts of the country.

PLANTERS and all parties interested in the production of cane sugar are invited to consider the great advantages to be derived by the use of the "National" cane-shredder. The use of this machine secures a large increase in the yield of juice, as has been shown by the experience of a number of plantations. Fuller particulars as to this valuable machine may be had by addressing the Newell Universal Machine Company, 10 Barclay street, New York, U. S. A.

THE "Cheshire" watch is a cheap, yet reliable, timekeeper, stem-winding and fully warranted. It has a quick-train, straight-line lever escapement, four jewels, exposed pallets, safety winding-barrel and an open face, with enameled dial, in a well-finished nickel case. The Cheshire Watch Company, Cheshire, Conn., U. S. A., or L. W. Sweet, the general selling agent for the company, 178 Broadway, New York, U. S. A., can be addressed for further particulars.

AMONG the most ingenious of Yankee inventions is the self-adjusting watch-key, which is designed to wind any watch. This key has met with well-merited success in its general adoption and large sale in this country, the stock of no jeweler being complete without it. Merchants desirous of handling a practical and profitable article should communicate with the manufacturers, J. S. Birch & Co., 38 Dey street, New York, U. S. A., and get catalogue, terms, &c.

OF late years many marked improvements have been made, not only in machines for clipping horses, but also in clipping machines for barbers' use. The Coates Clipper Manufacturing Company, Worcester, Mass., U. S. A., makes a specialty of this class of goods, and having kept abreast of the progressive spirit of the age, offers to its customers machines which it claims are the best in the market. The clippers are simple and durable, and persons interested should write to this concern for particulars.

THE most extensive manufactory of razor strops in the world is located at Worcester, Mass., U. S. A. The goods produced by it are known in every country. Purchasers are invited to send for catalogue "A," addressing J. R. Torrey & Co., Worcester, Mass., U. S. A. The J. R. Torrey Razor Company, located at the same place, manufactures a full line of razors, and its trade has become so great as to compel an extension of its facilities, and to meet the demand it has put in a new 50 horse-power engine, in addition to the enlargement of its premises and plant.

THE McMurray & Fisher sulky is made of the very best material. The axles are of the finest steel with wrought boxes, and are embedded in axle beds of second-growth ash; they run through from end to end, making them very stiff. The axle is arched $8\frac{1}{2}$ inches, allowing the horse to be hitched close to the seat. The shafts are of selected second-growth ash, and made extra wide at the point and at the stirrups, allowing plenty of room for horses of large action. The seats are caned and have silver rails. This sulky is made by McMurray & Fisher, Marion, Ohio, U. S. A. The same firm makes a skeleton road wagon possessing like characteristics of lightness and strength. These vehicles can be ordered unpainted and "knocked down," thus giving a great advantage in the reduction of the costs of freights and the customs duties. They are also sold at a very low price. The firm does a large export trade.

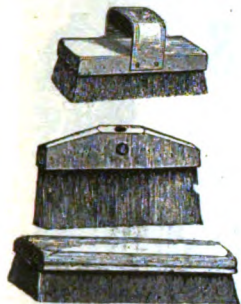
AMERICAN PATENT BRUSH COMPANY,

DETROIT, MICHIGAN, U. S. A.,

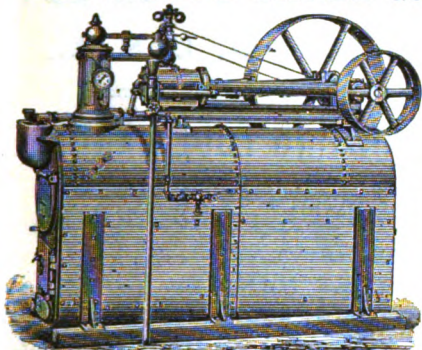
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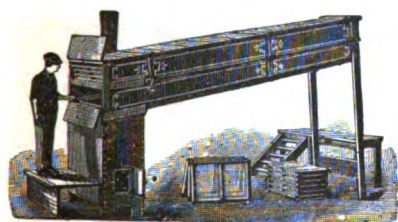


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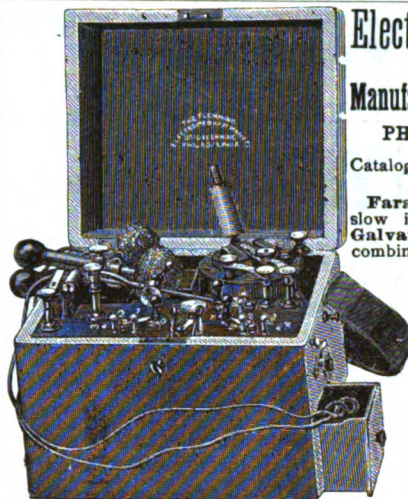
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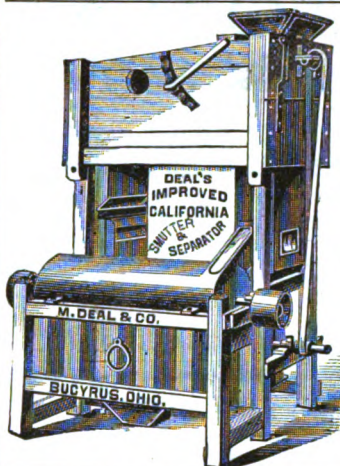
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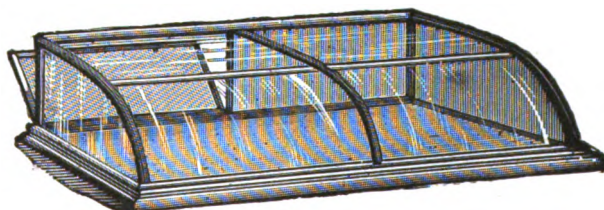
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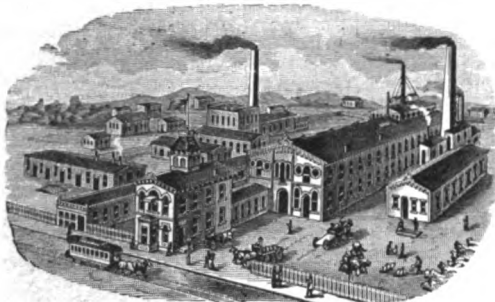


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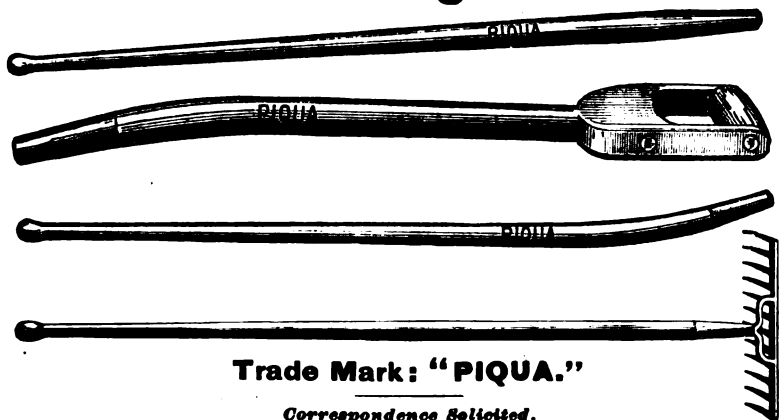
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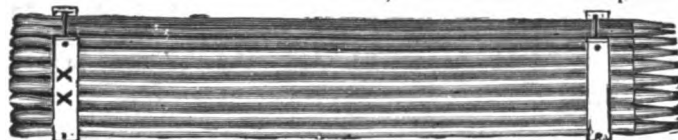
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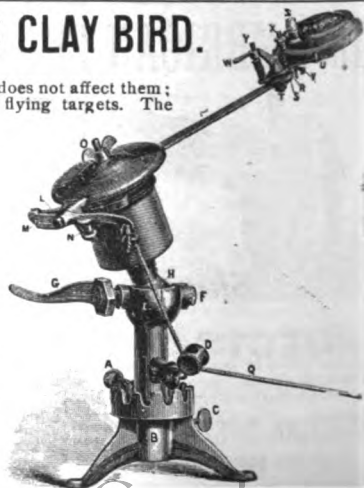
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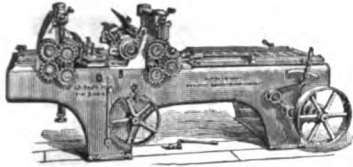
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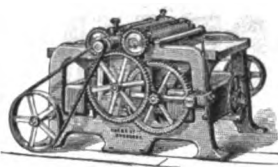
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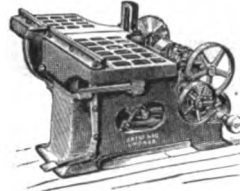
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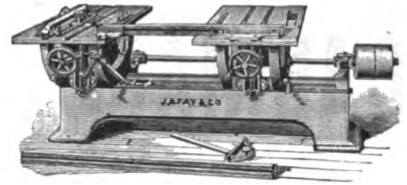
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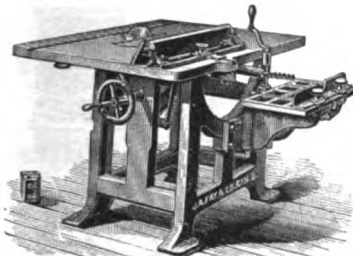
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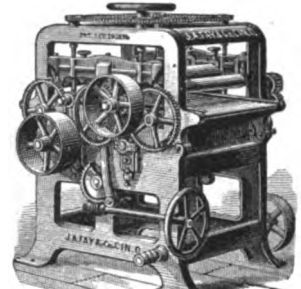
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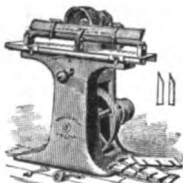
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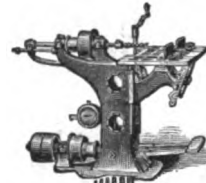
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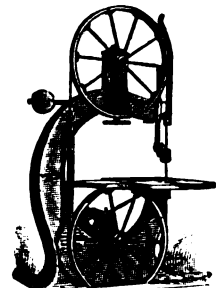
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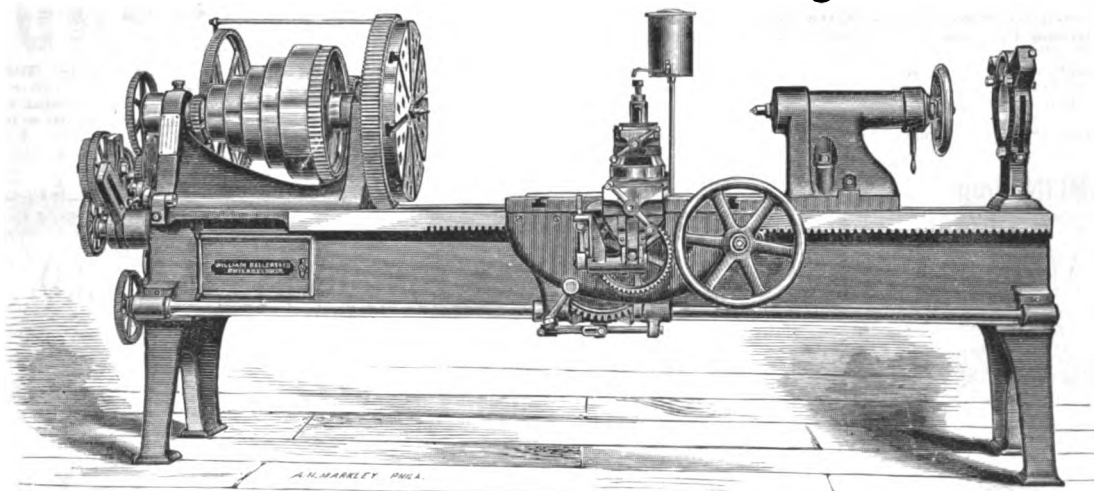


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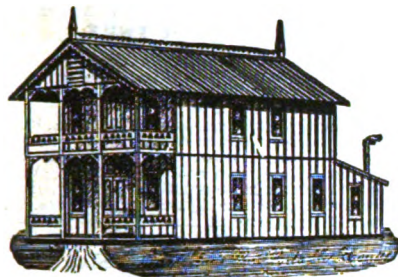
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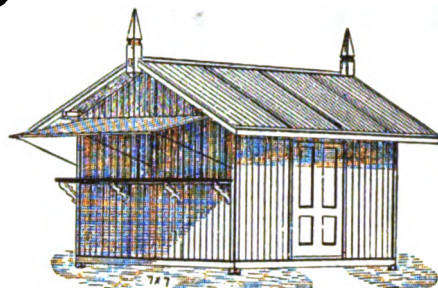
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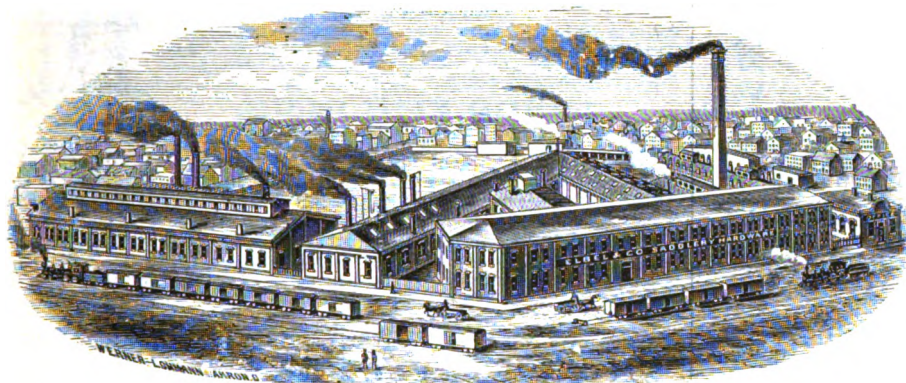
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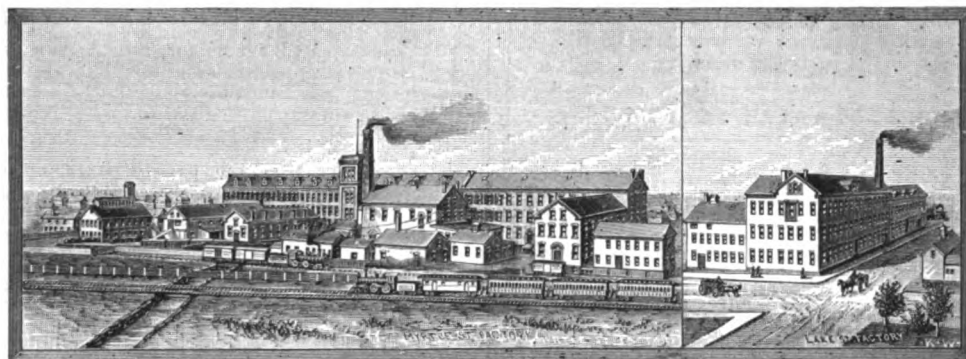
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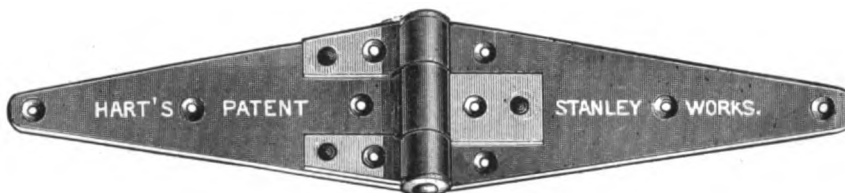
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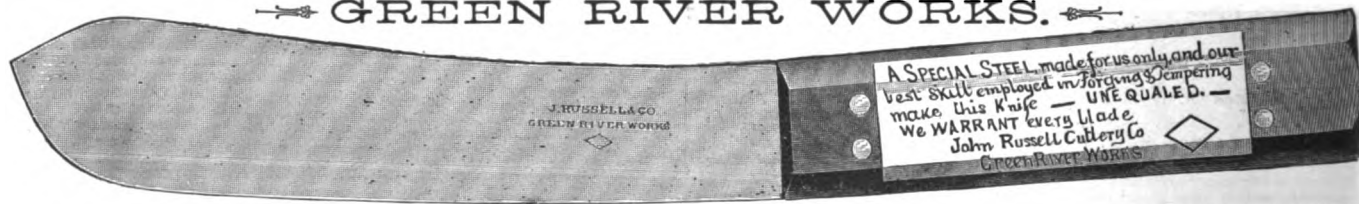
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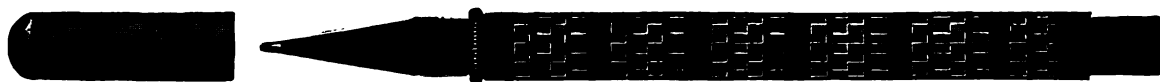
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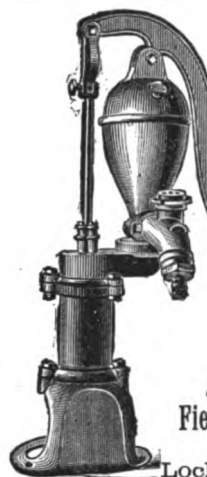
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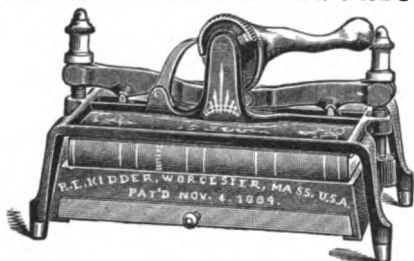
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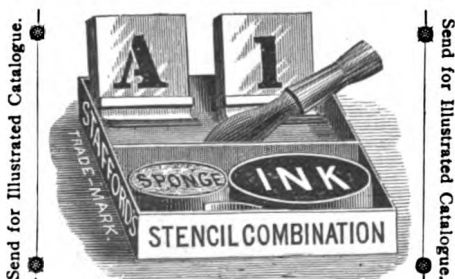


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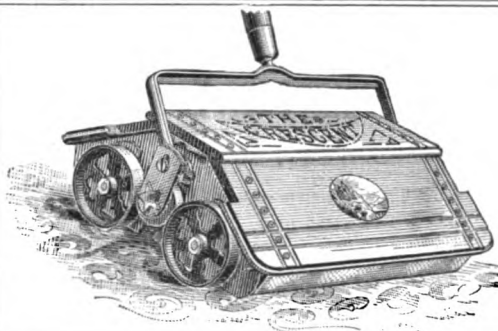
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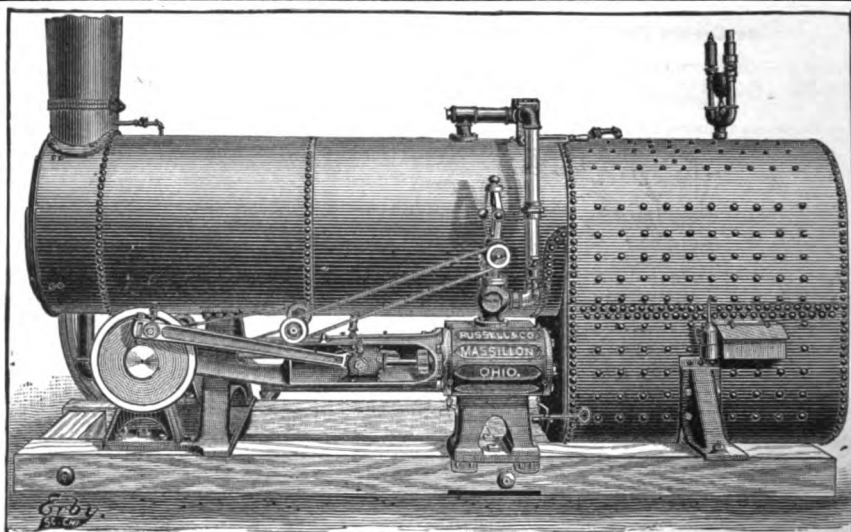
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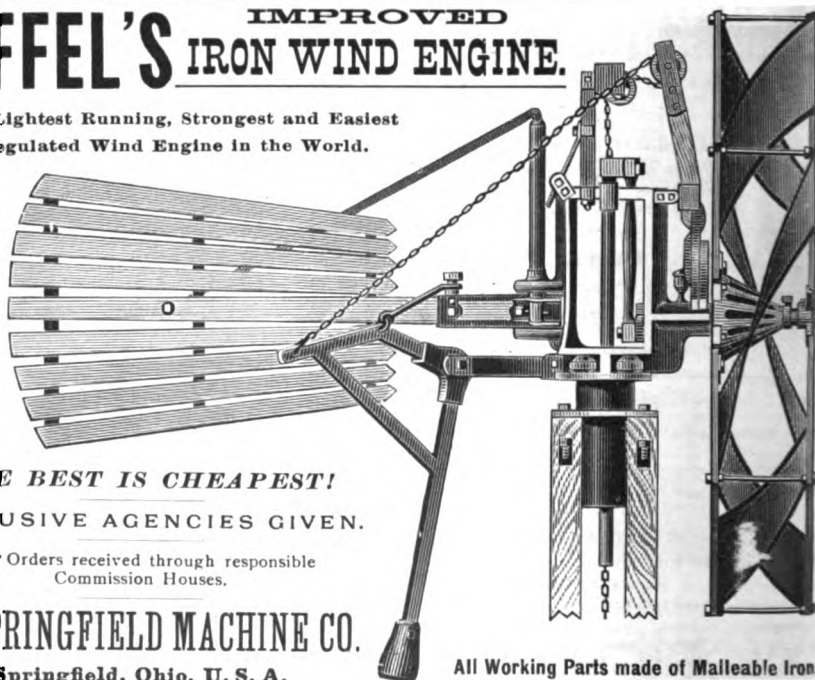
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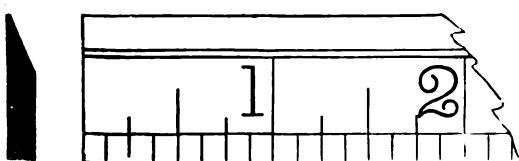
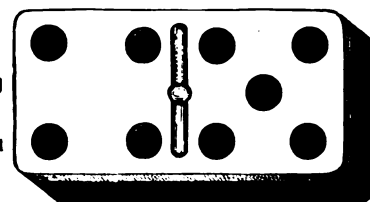
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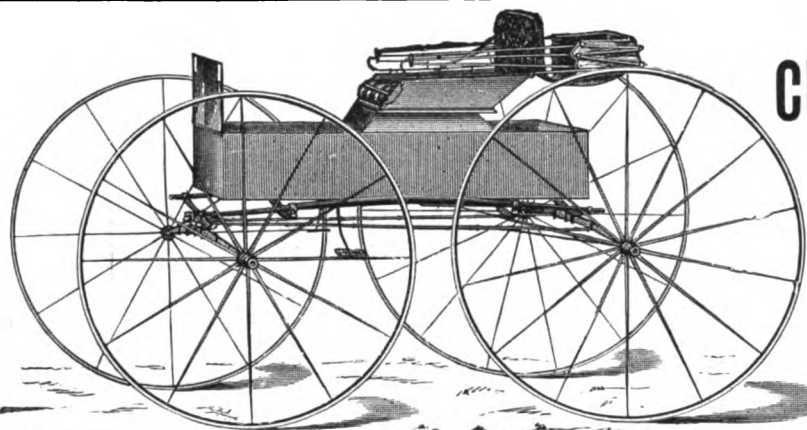
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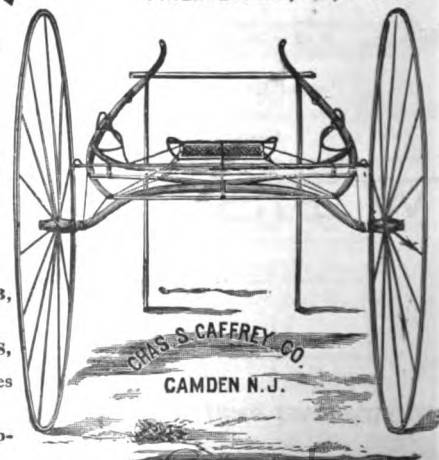
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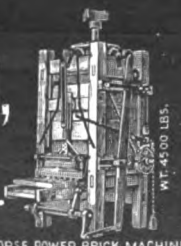
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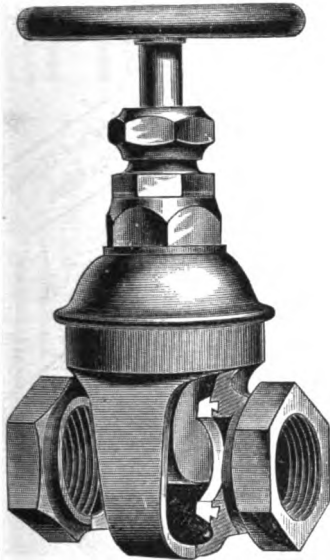
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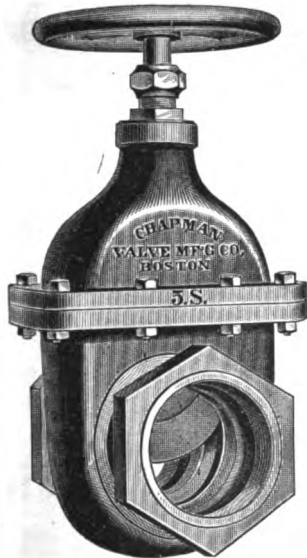


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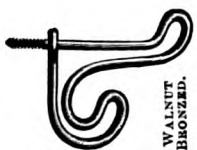
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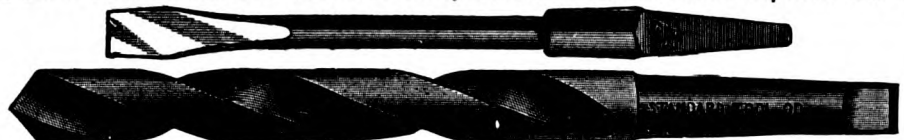
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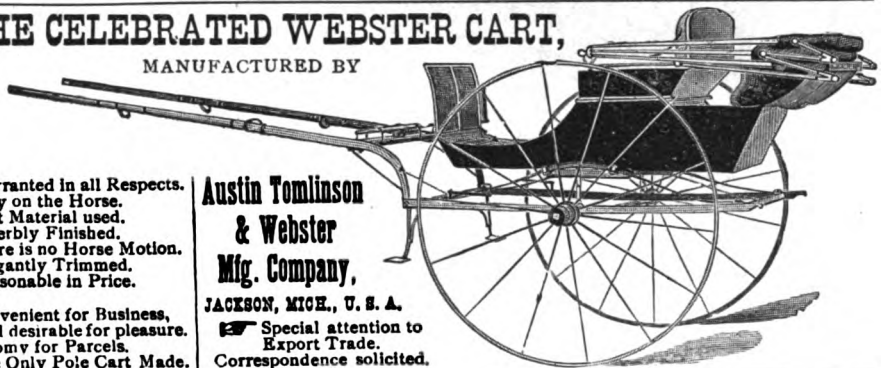
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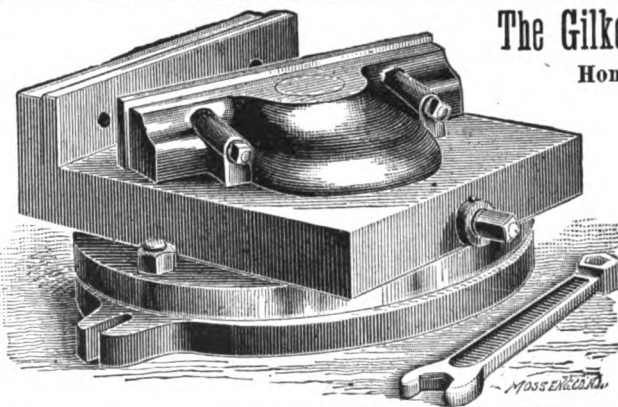
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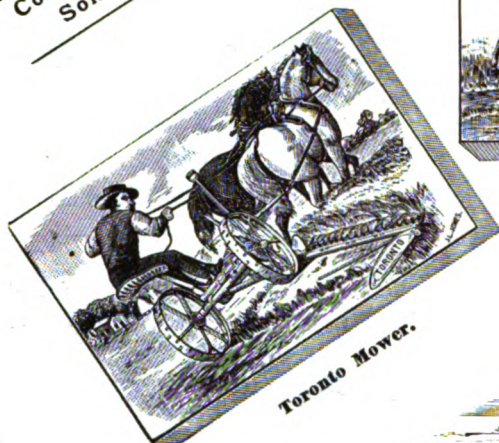
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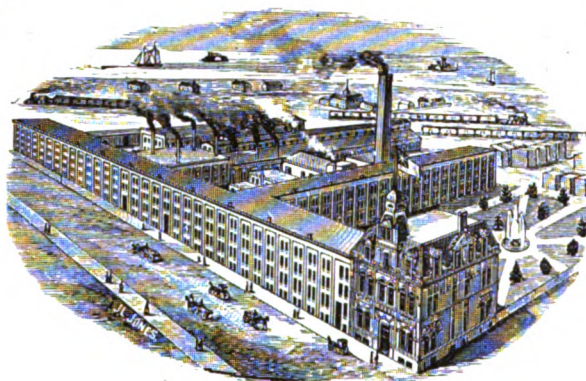


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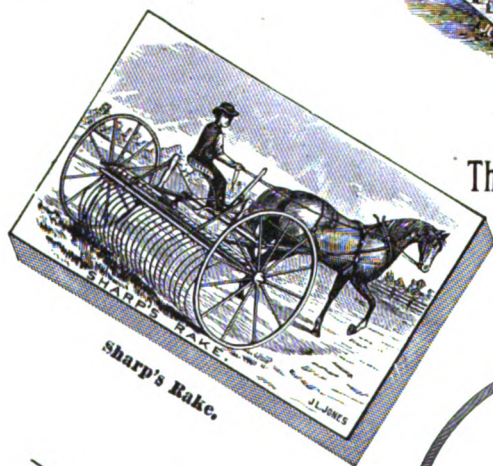
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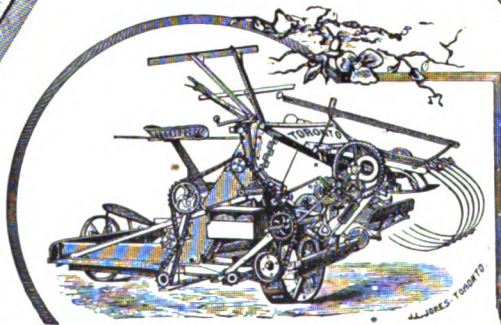
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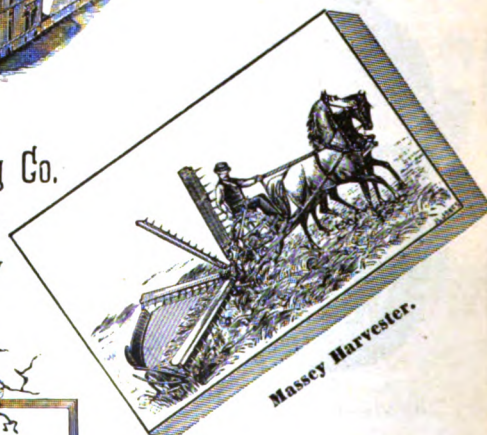


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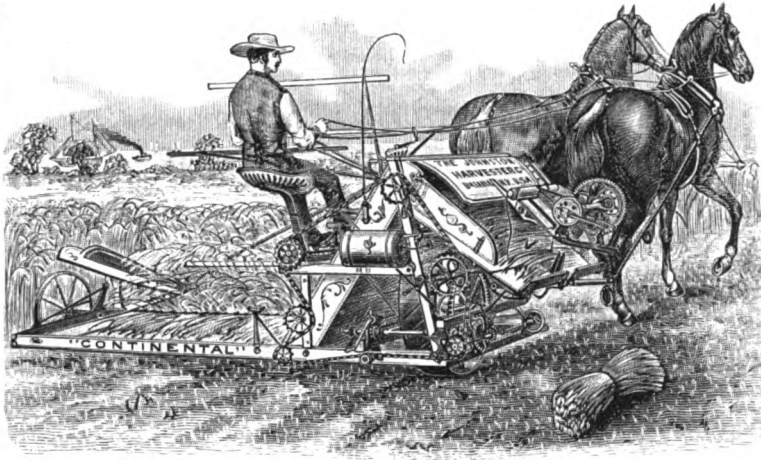
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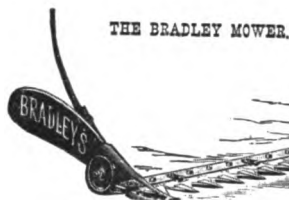
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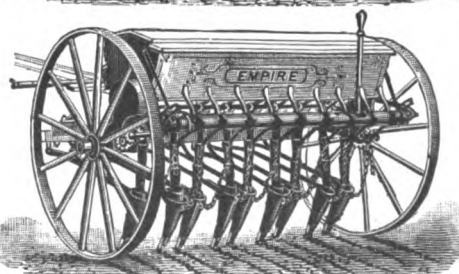
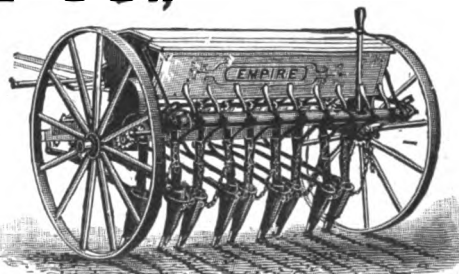
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ESTABLISHED 30 YEARS.

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Haus etablirt vor 30 Jahren.

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Vereingte Staaten von Nord Amerika.
Unterricht über dem Weizenbanem umsonst gesandt zu denjenigen welche diese Zeitung erwahren.

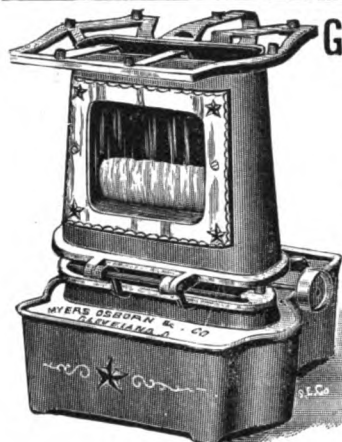
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GOLDEN STAR Oil-Stoves, Oil-Ranges, Oil-Torches.

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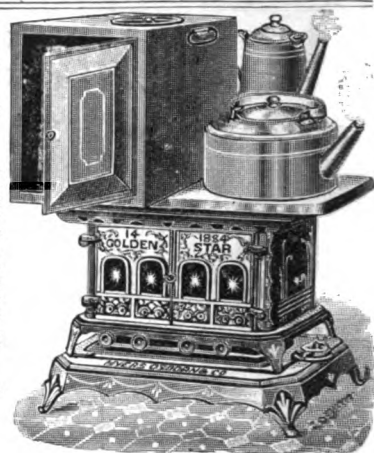
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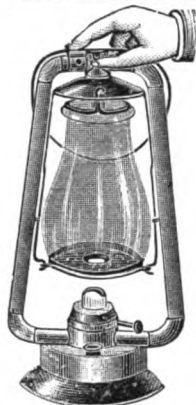
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Parties wishing the exclusive sale of the celebrated Golden Star line will please correspond with us. Catalogues, circulars, prices, &c., furnished upon application.

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OIL STOVE.



Genuine Safety
Tubular Lantern.
(Globe raised for
lighting.)

STEAM GAUGE AND LANTERN CO., — MANUFACTURERS OF — Tubular and Railroad Lanterns,

LOCOMOTIVE HEAD-LIGHTS, STEAM GAUGES,
&c., &c.,

ROCHESTER, N. Y., U. S. A.

NEW YORK HOUSE: 23 MURRAY STREET.

THE GENUINE SAFETY TUBULAR LANTERN GIVES A CLEAR, strong light, without smoking, and will not blow out. Can be lighted, extinguished, trimmed, filled and regulated without removing the globe.

HEAD-LIGHTS with 14, 16, 18, 20, 23 inch Reflectors.
STEAM GAUGES from 3-inch to 12-inch face, registering from 10 pounds to 200 pounds.

The STREET LAMPS on the Tubular principle are used without a chimney; give a clear, white light, equal to an ordinary gas burner; will burn in the strongest wind and will not blow out. Send for Catalogue and Prices.

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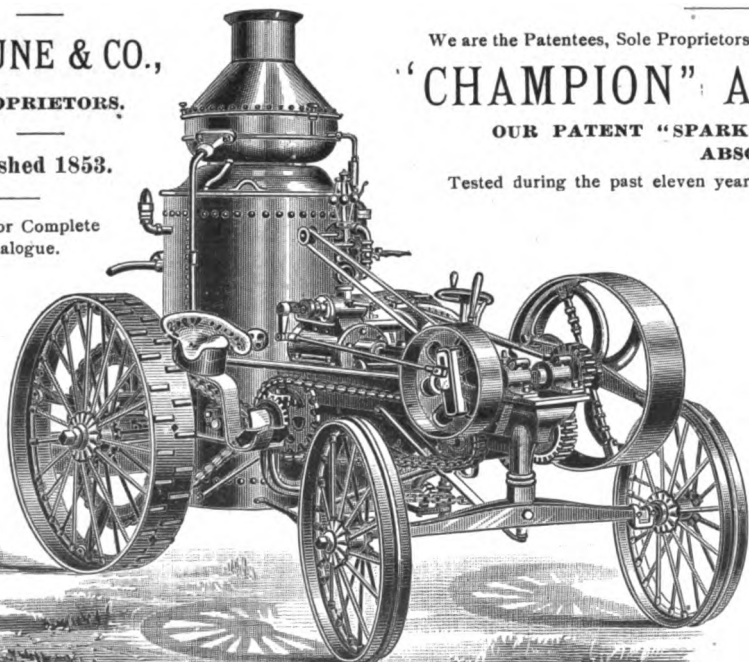
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PROPRIETORS.

Established 1853.

Write for Complete
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We are the Patentees, Sole Proprietors and Manufacturers in the United States of the FIREPROOF

"CHAMPION" AGRICULTURAL ENGINE,

OUR PATENT "SPARK ARRESTER" MAKING THESE ENGINES
ABSOLUTELY FIREPROOF.

Tested during the past eleven years, and now endorsed by all leading Insurance Companies.

OUR FRICTION-TRACTION ENGINE

Awarded First Premiums wherever exhibited.

ROAD LOCOMOTIVE,

WITH WATER TANK,

For hauling loads on the roads and Steam Gang Plowing, &c.

"CHAMPION" Stationary Engines

(PORTABLE TYPE),

From 20 to 40 Horse-Power, with Return Tubular Fire-Box Boiler.

STATIONARY ENGINES

From 2 to 200 Horse-Power, with or without Variable Graduating Cut-off, of which we are originators.

"CHAMPION" PORTABLE SAW MILLS.

**THE TRIUMPH REAPER**

Delivers bundles any desired size. The driver, in his seat, raises or lowers the platform, both sides alike, or tilts the bar to gather lodged grain. Draft light. Machine simple, strong, durable, and no other Reaper delivers the grain in so good order for binding.

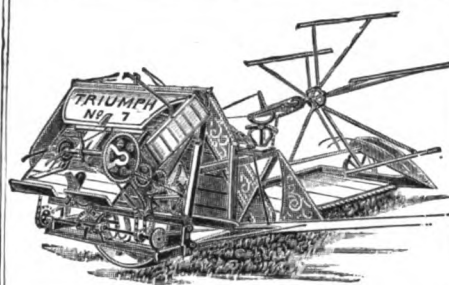
**Triumph Binder,
Triumph Reaper,
Triumph Mower,**

MANUFACTURED BY
D. S. MORGAN & CO.
BROCKPORT, N. Y., U. S. A.

ESTABLISHED 1845.

Send for Circular, and write for any desired Information.

THE TRIUMPH MOWER No. 4 has the best tilting apparatus, adjusts the bar to any desired height or pitch of guards, and is the Best Mower known to the trade.

**THE TRIUMPH BINDER**

5½ Feet Cut, will fold so as to Pass Through a 10 Foot Gate or opening. Has the simplest and most adjustable reel, and it is the Strongest, Most Durable and Best Working Binder in the Market.

D. C. & H. C. REED & CO.,

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MANUFACTURERS OF THE

ORIGINAL

Spring Tooth Harrows,

ONE AND TWO HORSE

CORN CULTIVATORS,

Sulky Harrow and Broadcast Seeder.

OUR GOODS ARE NOW BEING USED
SUCCESSFULLY IN AUSTRALIA, SOUTH
AMERICA AND RUSSIA.

SPECIAL ATTENTION GIVEN TO EXPORT ORDERS.

Correspondence Solicited.



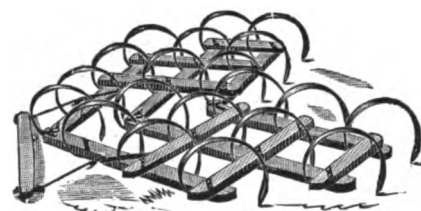
One-Horse Spring Tooth Cultivator.



Spring Tooth Broadcast Seeder.



Spring Tooth Corn and Fallow Cultivator.



The Original Spring Tooth Harrow.

"MUNSON" PORTABLE MILLS, MUNSON BROTHERS,

Proprietors and Manufacturers.

FOR THE MAKING OF WHEAT FLOUR AND CORN MEAL.

FRENCH MILLSTONES,

Finished and polished to correspond to the machine. Noiseless Feeding Apparatus, Bolting Cloth, and all sorts of accessories for Millers' use, at Moderate Prices.

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MUNSON HERMANOS,

PROPIETARIOS Y FABRICANTES DE LOS

Molinos Portatiles

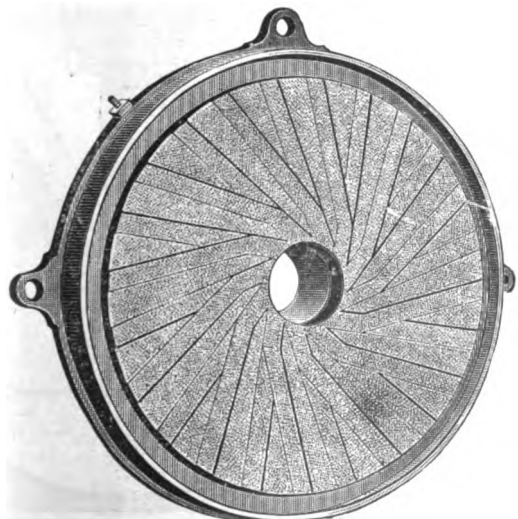
"MUNSON."

Para moler harinas de trigo y maíz.

PIEDRAS FRANCESES PARA MOLINOS,

Acabadas y equilibradas á máquina. Alimentadores
Silenciosos, Telas Para Cernir, y toda clase
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A Precios Modicos. UTICA, N. Y., E. U. de A.



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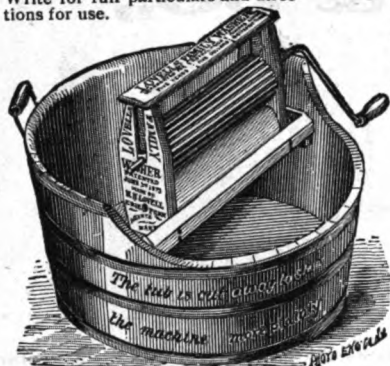
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Adams' Ironing Table.
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Lovell Lock Hinge Step Ladder.
Reversible Clothes-Horses.
Excelsior Clothes-Horses.

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Ideal Mouse Trap (Self-setting).
Adams' Five Wheel Truck.
Keystone Socket Rake,
&c., &c., &c.

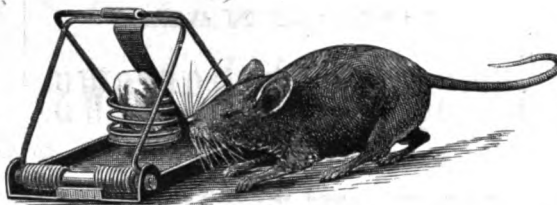


THE ADAMS CORK PULLER. (Patented.)

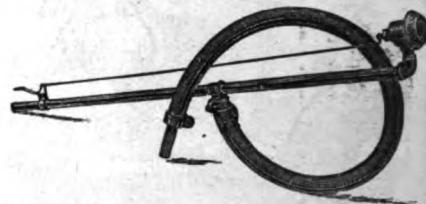
The only simple and efficient Cork Puller invented. Nickel-plated. For use in hotels, club-houses and houses. Write for full particulars and directions for use.



All goods securely boxed and delivered in New York, Boston, Philadelphia or Baltimore free of charge. Sample orders solicited. References: R. G. Dun & Co.'s Commercial Agency, or publishers of the American Mail and Export Journal. Send for our new Catalogue and Price List.

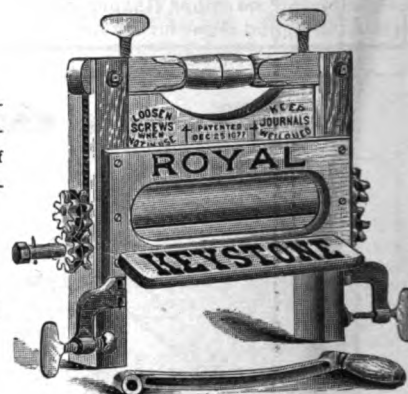


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HURLEY'S AUTOMATIC STEAM FLUE CLEANER. (PATENTED).

For upright or horizontal boilers. A perfect cleaner. Saves fuel. One hand supports cleaner, the other operates valve lever.



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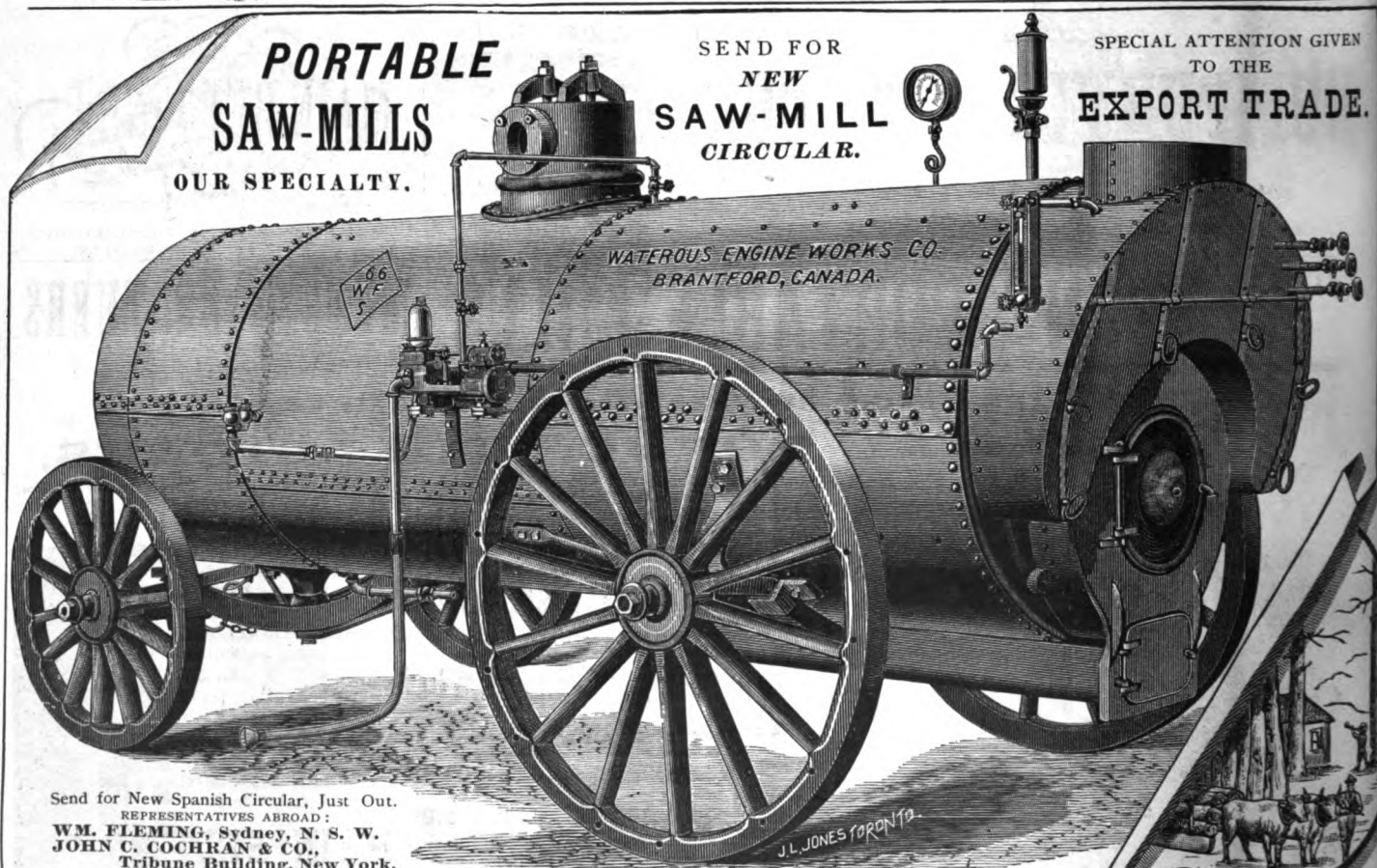
Warranted Fine Para Rubber Rolls. Natural color. Hard maplewood frame. Should last fifteen years, with ordinary care in using.

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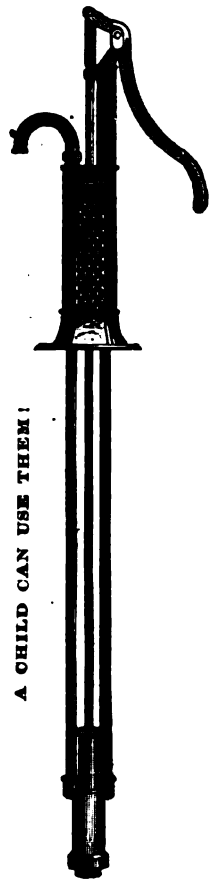
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MAST, FOOS & CO.Springfield, Ohio,
U. S. A.,Manufacturers
of the**IRON TURBINE
WIND
ENGINES.****Strong and Durable, will not Swell, Shrink,
Warp or Rattle in the Wind.****BUCKEYE FORCE PUMP**

Works easy and throws a constant stream. Has Porcelain-lined and Brass Cylinders. Is easily set. Is the Cheapest and Best Force Pump in the World for Deep or Shallow Wells. Over 100,000 in use. Never freezes in winter. Send for circulars and prices, giving depth of well.

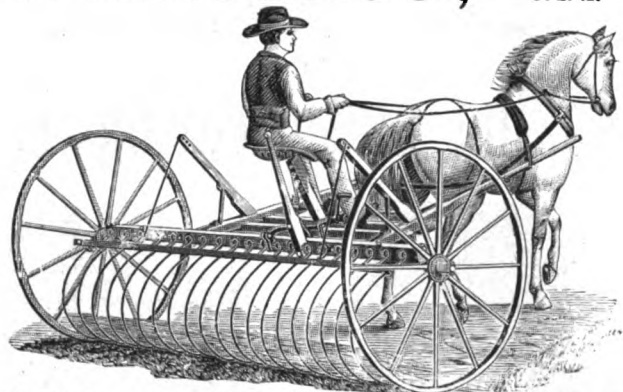
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Made in 10, 12, 14 and 16 in. cut.

Strong, Durable!**Lightest Running!****FAR
SURPASSING
ALL
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MACHINES
MADE.**

A CHILD CAN USE THEM!

THOUSANDS IN USE!

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U. S. A.**NO Ratchets or Cog Wheels to get out of order. Practically a Self-Dump Rake. High Wheels with tires bolted on. Teeth long and adjustable. Made of Crucible Steel, Oil Tempered. Has Lock-Lever and Swinging Cleaner Bar. Made of the best material; neatly finished. We make both Coil and Drop Tooth. See it and you will appreciate it.****BUCKEYE DRILL.****NEW FORCE FEED.****Changes Quantity without change of gears. More in use than any other Drill in the world. Be sure and buy the Buckeye if you want the best. Who can afford to do without one?**

— MANUFACTURED BY —

P. P. MAST & CO., Springfield, Ohio, U. S. A.

Also Manufacturers of Buckeye Broadcast Seeders, Riding and Walking Cultivators, Spring-Tooth Cultivators, Five Shovel or Horse-Hoe Cultivators, Double Shovel Plows, Cider Mills, Lard Presses, &c.

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HUMPHRYES MFG. CO.,

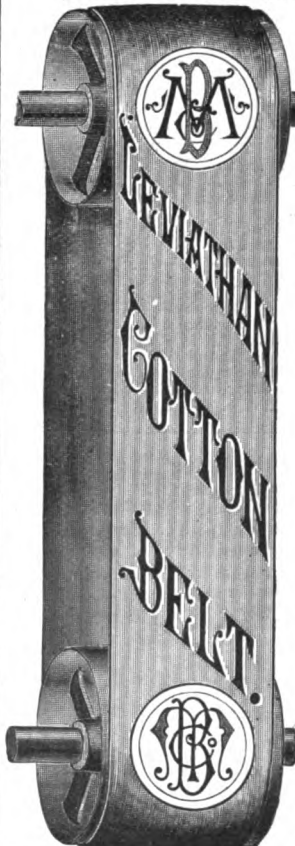
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**Iron, Brass and Brass Cylinder Cistern,
Pitcher, Well and Force****PUMPS,****Windmill,****Boiler Feed,****Horizontal and****Rotary****PUMPS,****Hydraulic Rams,****IRON AND BRASS CYLINDERS.**

CATALOGUES FURNISHED ON APPLICATION.

ALWAYS GIVES THE UTMOST SATISFACTION.

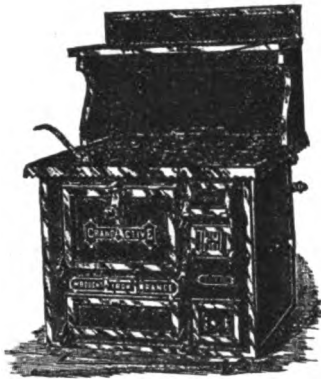
**MAIN BELTING CO.**

MANUFACTURERS OF THE

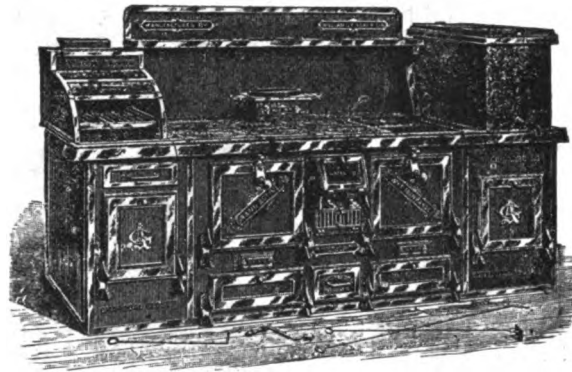
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and Cheapness.****Made from One to Ninety Inches Wide,
to any Length and Strength for****MAIN DRIVING BELTS,****Guaranteed to Run Straight,
Even Throughout,
No Cross Joints,
Unaffected by Damp,
Clings well to the Pulley,
Has no Equal,
In fact, is
THE BELT.****Used for Dye Works, Bleacheries, Paper Mills,
Flour Mills, Saw Mills, Mines, Woolen
Mills, Cotton Mills, Threshing Ma-
chines, Brick Machines, Eleva-
tors, &c., &c.****MAIN BELTING CO.,**S.-W. Cor. Ninth and Reed Sts., PHILADELPHIA, U. S. A., and
248 East Randolph Street, CHICAGO, ILL., U. S. A.

THE WILLIAM G. FISCHER

Cooking and Heating Apparatus Manufacturing Co.



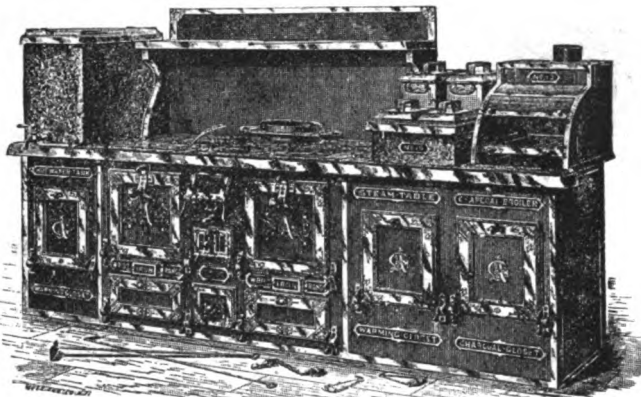
Cut 11.



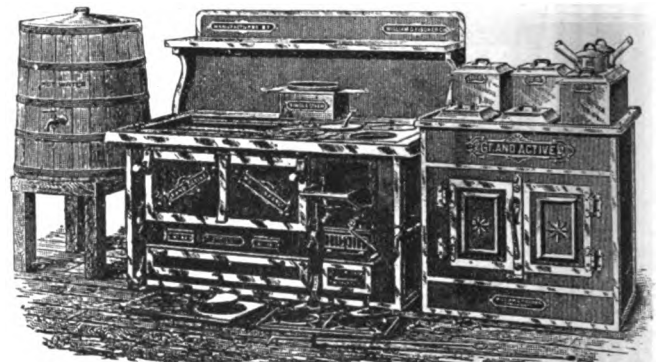
Cut 72.



Cut 40.



Cut 48.



Cut 58.

Cut	Description	Shipping Weight.
Cut 11.	Grand Active Wrought Steel Range, cabinet style, family size,	535 Lbs.
" 40.	Double Oven Grand Active Wrought Steel Range, cabinet style, family size,	790 "
" 48.	Double Oven Grand Active Wrought Steel Range, with galvanized tank on closet, charcoal broiler on closet, and steam table on closet attached, cabinet style, family size,	1,150 "
" 72.	Double Oven Grand Active Wrought Steel Range, with galvanized tank on closet, and charcoal broiler on closet attached, cabinet style, suitable for boarding-houses and restaurants,	1,890 "
" 58.	Single Oven Grand Active Wrought Steel Range, cabinet style, Steam Table with vessels connected, No. 75 gallon wood tank connected, suitable for restaurants or hotels,	2,125 "

Cuts	11	40	48	72	58
Size of top cooking surface, inches,	36x23	52x29	52x29	60x38	66x38
Size of oven,	20x20	20x14 each.	20x14 each.	25x16 each.	36x25
Size of warming oven,	23x20	20x18	20x17	25x19	40x25
Number of holes,	6 (8 in.)	6 (8 in.)	6 (8 in.)	8 (9 in.)	8 (9 in.)
Height to top cooking surface, inches,	30	30	30	33	33
Size of warming closets,	...	...	20x17	25x21	...
Size of charcoal closets,	...	...	20x17	25x21	...
Capacity of tank, gallons,	...	...	25	50	75
Size of broiler,	...	...	10x13	26x17	...
Steam table dishes (4), size,	...	...	10x6 7/8 each.	...	10x10 1/2 each.
Steamers (2), size,	...	...	10x6 3/4 each.	...	10x10 1/2 each.

Made specially for the use of each kind of fuel separately—bituminous coal, anthracite coal, coke, wood, natural gas, and water gas. Sample book, with full descriptions and illustrations, consisting of over one hundred and seventy-five plates, furnished free on application; also price list and discounts.

Main part made entirely of steel. Absolutely no Breakage.

Fig.	Description	Poids de Expédition.
Fig. 11.	Grand Fourneau "Actif" en Acier Façonné, modèle cat' net, dimension de famille,	535 Livs.
" 40.	Grand Fourneau "Actif" à Double Four, en Acier Façonné, modèle cabinet, dimension de famille,	790 "
" 48.	Idem, avec réservoir galvanisé sur armoire, grill pour charbon de bois sur armoire et table à vapeur sur armoire joints au fourneau, modèle cabinet, dimension de famille,	1,150 "
" 72.	Grand Fourneau "Actif" à Double Four, en Acier Façonné, auquel sont réunis un réservoir galvanisé sur armoire et un grill pour charbon du bois sur armoire, modèle cabinet, convenable pour pensions et restaurants,	1,890 "
" 58.	Grand Fourneau "Actif" à Four Simple, en Acier Façonné, modèle cabinet, auquel est joint une table à vapeur avec réceptacles, et un réservoir en bois contenant No. 75 gallons, convenable pour restaurants ou hôtels,	2,125 "

Figs.	11	40	48	72	58
Dimension de la surface supérieure pour la cuisson, pouces,	36 x 28	52 x 29	52 x 29	60 x 38	66 x 38
Dimension du four,	20 x 20	20 x 14 (cha-	20 x 14 (cha-	25 x 16 (cha-	36 x 25
chauffe-assiettes,	23 x 20	20 x 18 (que,	20 x 17 (que,	25 x 19 (que,	40 x 25
Nombre de trous,	6 (8 pcs.)	6 (8 pcs.)	6 (8 pcs.)	8 (9 pcs.)	8 (9 pcs.)
Hauteur de la surface supérieure pour la cuisson, pouces,	30	30	30	33	33
Dimension des armoires à chauffer, charbon de bois,	...	...	20 x 17	25 x 21	...
Capacité du réservoir, gallons,	...	...	25	50	75
Dimension du grill,	...	...	19 x 13	26 x 17	...
Dimension des réceptacles de la table à vapeur (4),	...	...	10 x 6 7/8	cha- 10 x 10 7/8	...
Dimension des échaudeurs à vapeur (2),	...	...	10 x 6 3/4	que. 10 x 10 1/2	...

Sont fabriqués séparément pour le combustible spécial qu'on désire employer, tel que charbon bitumineux ou anthracite, coke, bois, gas naturel et gas hydrogène. Sur demande nous envoyons gratuitement un livre de nos échantillons-avec explications complètes et illustrations, comprenant plus de cent-soixante-quinze gravures; de même pour notre prix-courant.

Fabriqués entièrement en Acier. Il n'y a Absolument aucune Cassure.

CINCINNATI, OHIO, UNITED STATES AMERICA.

FRAZER & JONES CO.,*Syracuse, N. Y., U. S. A.,*

MANUFACTURERS OF

**SADDLERY
HARDWARE,****Malleable Iron Castings,****BRASS CASTINGS**

— AND —

GENUINE STEEL CASTINGS.

WE manufacture a full line of Buckles, Halter Trimmings, Rings, Cockeyes, Trace Carriers, Tug Hooks, Terrets, Gig Hooks, Post and Pad Hooks, Swivels, Bits, Self-Adjusting Trees and Trimmings, Snaps, Curb Hooks, Crupper Loops, Breeching Dees and Loops, Breast Strap Slides, Blind Irons, Gig Trees, Saddle Nails and Ornaments, Rosettes, Pad Screws, Harness Saddles, Pads, Blinds, Fronts, Hand Parts, Reins, Halters, Wood and Iron Hames; also Carriage and Wagon Hardware.

AUTOMATIC STEAM ENGINE.

Pronounced by prominent mechanics as "one of the greatest triumphs of inventive skill ever designed."

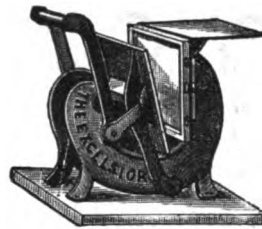
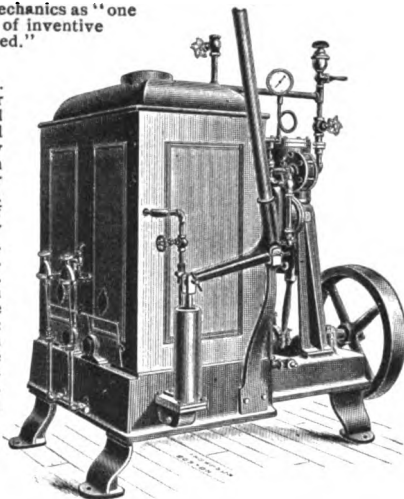
BURNS petroleum for fuel. Requires no Engineer or Fireman. Automatic in its fuel and water supply. Feeds the fuel to the furnace, stopping the supply when fuel reaches a certain height, and renews it again after steam falls below a set point. Starts and stops the pump itself when water in boiler falls below or rises above the proper level. You can be your own engineer. Is absolutely safe from explosion. By simply supplying petroleum and water the engine takes care of itself. Sizes manufactured: 1½, 3 and 5 horse power, both Stationary and Marine. Suitable for Farmers, Carpenters, Machinists, Manufacturers, Pumping, Electric Lighting, Steam Yachts, &c., &c.

Send for Illustrated Catalogue.

EDWIN W. ADAMS & CO., 114 Wall Street, New York, U. S. A.**MÁQUINA DE VAPOR AUTOMÁTICA.**

Declaran los maquinistas más experimentados que es "uno de los mayores triunfos jamás ideados por la ciencia de inventores."

SU combustible es el petróleo. No necesita ni maquinista ni fogonero. Se abastece automáticamente de combustible y agua. Alimenta de combustible al hogar, para tal abastecimiento luego que el combustible llegue a cierta altura, renovándolo después de bajar el vapor hasta un punto determinado. Hace funcionar y parar automáticamente la bomba al bajar el agua debajo del nivel necesario y asimismo al subir sobre él. El propietario de la máquina puede ser su propio maquinista. No hay absolutamente ningún peligro de explosión. Todo lo que hay que hacer es echarle petróleo y agua cuando funcionará automáticamente. Los tamaños que se hacen de ella son de 1½, 3 y 5 caballos, tanto para las extraccionarias como marítimas. La usan los hacendados, carpinteros, maquinistas, fabricantes, los que la emplean para el bombeo, para producir luz eléctrica, así como para yates de vapor, &c., &c. Se enviará a solicitud el catálogo ilustrado.

EDWIN W. ADAMS y CIA, 114 Wall St., Nueva York, E. U. de A.

No. 1.



No. 2.



No. 3.

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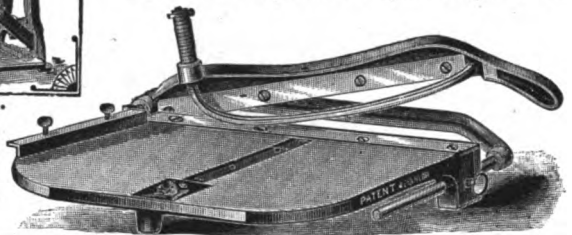
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Printing Presses**FOR HOME OR BUSINESS USE.****Print Your Own** Cards, Labels, Envelopes, Circulars, Newspapers, &c.,

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PRICES.**Hand-Inking Press, Cut No. 1.** To print 3x5 inches, with Type, Ink, &c., **\$10.00.****Large Size, to print 10x15 inches, with Type, Ink, &c., \$90.00.****Self-Inking Presses, Cut No. 2.** To print 5x9 inches, with Type, Ink, &c., **\$38.00.** Size to print 10x18 inches, with Type, Ink, &c., **\$125.00.****Rotary Job Press, Cut No. 3.** Prints 9x12 inches. Price, **\$95.00.****CARD AND PAPER CUTTER,**

24½ Inch Steel Blades, only \$12.

Kelsey & Co., Meriden, Conn., U. S. A.**LINDLEY M. ELKINTON,**

MANUFACTURER OF

Cylinder Tallow,**White Mill Grease,****Engine Tallow,****Soft Amber Grease,***Put up in Boxes of 25 lbs., 50 lbs. and 100 lbs. each,***532 ST. JOHN STREET, PHILADELPHIA, PA.**

A. H. VAN CLEVE, General Purchasing Agent for the Camden and Amboy R.R. and Transportation Co., writes from South Amboy, January 22, 1877:

"L. M. ELKINTON has furnished the United Companies of New Jersey, since March, 1869, and during 1870 and 1871, over one hundred and seventy thousand (170,000) pounds Cylinder Tallow, which has given the Motive Power Department and the Steamboat Machine Department entire satisfaction.

"I believe Mr. ELKINTON's TALLOW to be free from the acids so destructive to Steam Cylinders and Valves which is generally found in the tallow usually offered for sale in the market.

A. H. VAN CLEVE."

A. H. VAN CLEVE, Comprador General de la Compañía de ferrocarril Camden and Amboy R.R. and Transportation Co. se expresa como sigue:

SOUTH AMBOY, Enero 22, de 1882.

"El Señor L. M. ELKINTON ha estado proveyendo a las Compañías Unidas del Estado de New Jersey de sebo para cilindros desde el mes de Marzo de 1869 y durante los años 1870 y 1871, vendiéndoles más de ciento setenta mil libras (170,000 lb.), dando entera satisfacción al Departamento de Fuerza Motriz y así mi mal de maquinaria de los vapores.

"Creo que el sebo del Señor ELKINTON no contiene los ácidos tan perjudiciales a cilindros y válvulas de vapor que suelen encontrarse en los sebos que usualmente se ofrecen en el mercado.

A. H. VAN CLEVE."

YORK MFG. CO.

— MANUFACTURERS OF —

THE JARMAN
Ice Making & Refrigerating

(ANHYDROUS AMMONIA)

APPARATUS,

For Brewers, Pork Packers, Oil Refiners, Cold Air Storehouses, Ocean Vessels,
and all purposes where a low degree of temperature is required.

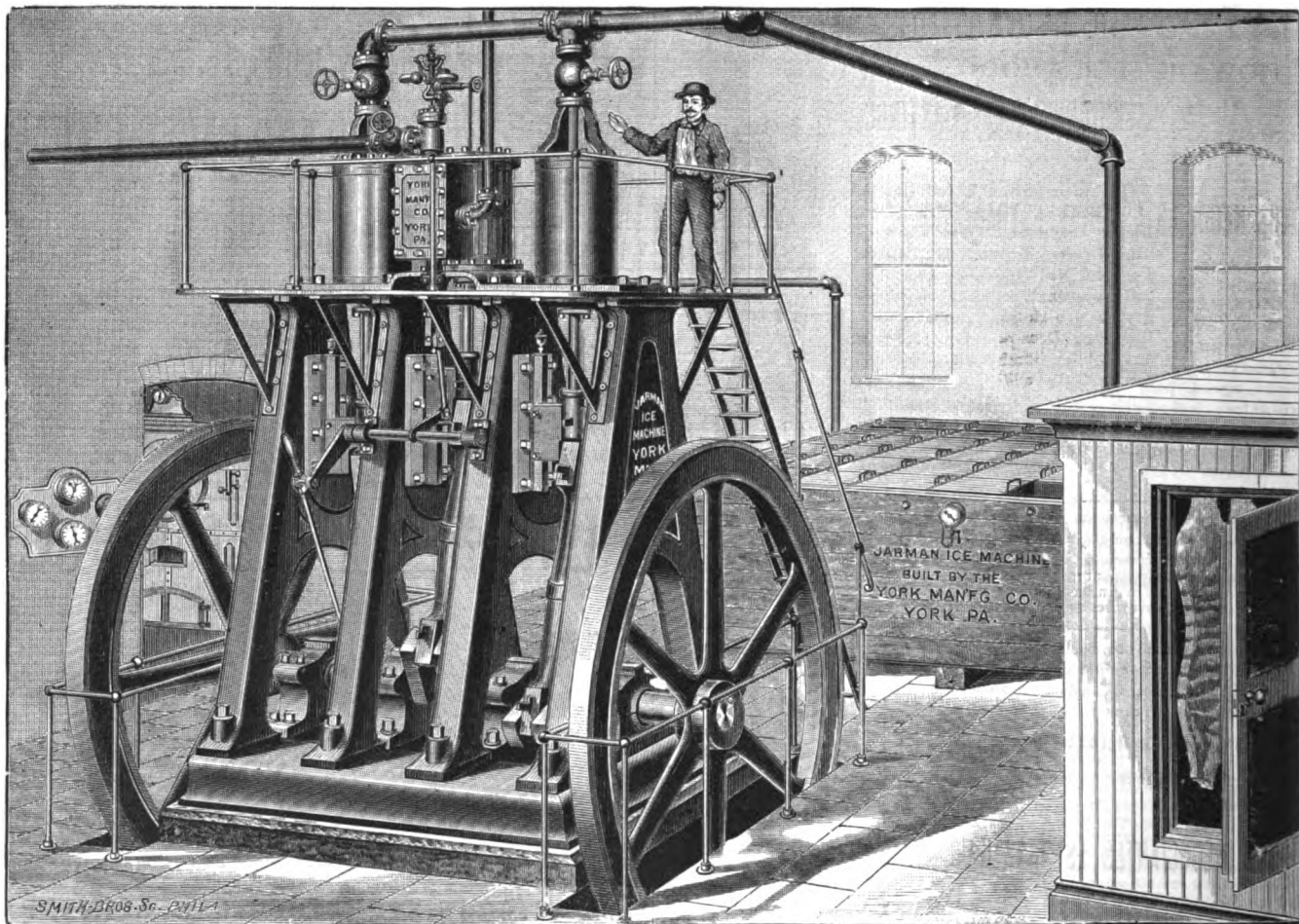
YORK MFG. CO.

— FABRICANTES DE —

Aparatos para Hacer Hielo y Refrigerar

PATENTE DE JARMAN,

(AMONIACO ANHÍDRICO),

Para cervecerías, empaques de puero salado, refinerías de azúcar,
almacenes con aire frio y vapores transatlánticos, propios
para todos los casos en que se trate de producir
un bajo grado de temperatura.

WHAT WE CLAIM FOR OUR MACHINE:

- 1.—It is Noiseless.
- 2.—It is run at a less number of revolutions than other machines of the same capacity.
- 3.—It has Less Movable Parts than any other machine on the market.
- 4.—It Oils itself automatically.
- 5.—It requires Less Ammonia to produce the desired results than any other machine of the same capacity.
- 6.—One Valve regulates the whole machine.

We guarantee unsurpassed regularity in cooling power, even under the most sudden changes of atmospheric temperature during the hottest seasons of the year. Our machines are built by experienced workmen, from carefully selected material, and all Machinery positively guaranteed.

SEND FOR ILLUSTRATED CATALOGUE.

ADDRESS

YORK MFG. CO., York, Pa., U. S. A.

LO QUE RECLAMAMOS Á FAVOR DE NUESTRA MÁQUINA:

- 1.—Que es silenciosa.
- 2.—Que necesita menos giraciones que otra cualquiera de igual capacidad.
- 3.—Que tiene menos piezas móviles que otra cualquiera.
- 4.—Que se aceita automáticamente.
- 5.—Que para dar los mismos resultados necesita menos amoníaco que otra cualquiera de igual capacidad.
- 6.—Que basta una sola válvula de regulacion para toda la máquina.

Garantizamos una regularidad de poder refrigerador insuperable por más repentinos que sean los cambios de temperatura atmosférica durante la estación más caliente del año. Nuestras máquinas son construidas por artesanos experimentados; se escoge cuidadosamente el material para fabricarlas, GARANTIZÁNDOSE POSITIVAMENTE TODA MAQUINARIA que salga de nuestros talleres.

Se enviará á solicitud el Catálogo Ilustrado.

DIRIJIRSE Á LA

YORK MFG. CO., York, Pa., E. U. de A.

TO FOREIGN MERCHANTS.

JULY 16, 1886.

THE undersigned, having established a **PERMANENT EXHIBITION** at 24, 26, 28, 30, 32 and 34 New Chambers Street, in the City of New York, for American goods suitable for export, and having accepted the export agency for a number of the most prominent American manufacturers, is desirous of opening correspondence with foreign merchants, with a view to establishing agencies in different centres throughout the world.

Acting under special instructions from American manufacturers, the undersigned is in a position to make the most favorable arrangements with firms in good standing who are ready to take the agency of certain specialties, and push the sale of same.

When writing on this subject, please give full information relative to the class of goods wanted and facilities for disposing of same, together with references as to financial standing. Address

HOWARD LOCKWOOD,

24-34 New Chambers St.,

Or P. O. Box 3715.

NEW YORK, U. S. A.

Á LOS NEGOCIANTES EN EL ESTRANGERO.

EL suscrito, teniendo establecido una **EXPOSICION PERMANENTE** en los números 24, 26, 28, 30, 32 y 34 New Chambers Street, en la Ciudad de New York, para mercancías Americanas propias para exportación, y habiendo sido nombrado agente para exportación de un grande número de los principales fabricantes Americanos, desea entablar correspondencia con comerciantes establecidos en el extranjero con el propósito de abrir agencias en diferentes partes del mundo.

Teniendo celebrado acuerdos especiales, el abajo firmado se halla en disposición de llevar á cabo los arreglos mas favorables con las firmas de credito establecido que deseen hacerse cargo de la agencia para la venta de ciertas especialidades.

Al escribirnos sobre el particular sirvanse darnos plenos informes respecto de la clase de articulos que se deseen, como asi mismo de las facilidades con que se cuenta para las ventas, remitiendonos los solicitantes referencias acerca del actual estado financiero de su casa. Direccion:

HOWARD LOCKWOOD,

24-34 New Chambers St., New York, U. S. A.

AOS NEGOCIANTES ESTRANGEIROS.

O ABAIXO assignado, tendo estabelecido uma **EXPOSIÇÃO PERMANENTE**, em os numeros 24, 26, 28, 30, 32 e 34, New Chambers Street, na Cidade de New York, para Mercadorias Americanas proprias para exportação, e tendo acceto a agencia para exportação de um grande numero dos fabricantes principais Americanos, deseja abrir correspondencia com mercadores estrangeiros, com o fim de estabelecer agencias em diferentes centros por todo o mundo.

Operando debaixo de instruções especiaes dos manufactureiros Americanos, o abaixo assignado se acha em posição de fazer os arranjos mais favoraveis com as firmas de credito firmado que queirão tomar a si a agencia de certas especialidades para procurar vendas.

Em nos escrevendo sobre este assumpto queiram dar plena informação a respeito da qualidade de generos desejados e sobre as facilidades para as vendas dando outrossim referencias quanto ao estado financeiro.

Dirijão-se a

HOWARD LOCKWOOD,

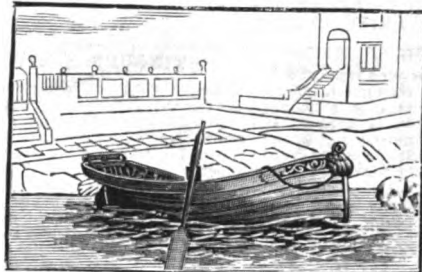
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Manufacturers of all kinds

IRON ROOFING, SIDING and CEILING,

Corrugated, Crimped and Beaded, made of the Best Refined Charcoal Iron, Sheet Steel and Calamined Iron.

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Every Roof sold in ten years satisfactory.

ANY MECHANIC CAN APPLY IT.

CIRCULARS AND SAMPLES FREE TO ALL PARTS OF THE WORLD

— THE CELEBRATED —
Ross Patent Fodder (Chaff) Cutters**BUSINESS ESTABLISHED 1851.**

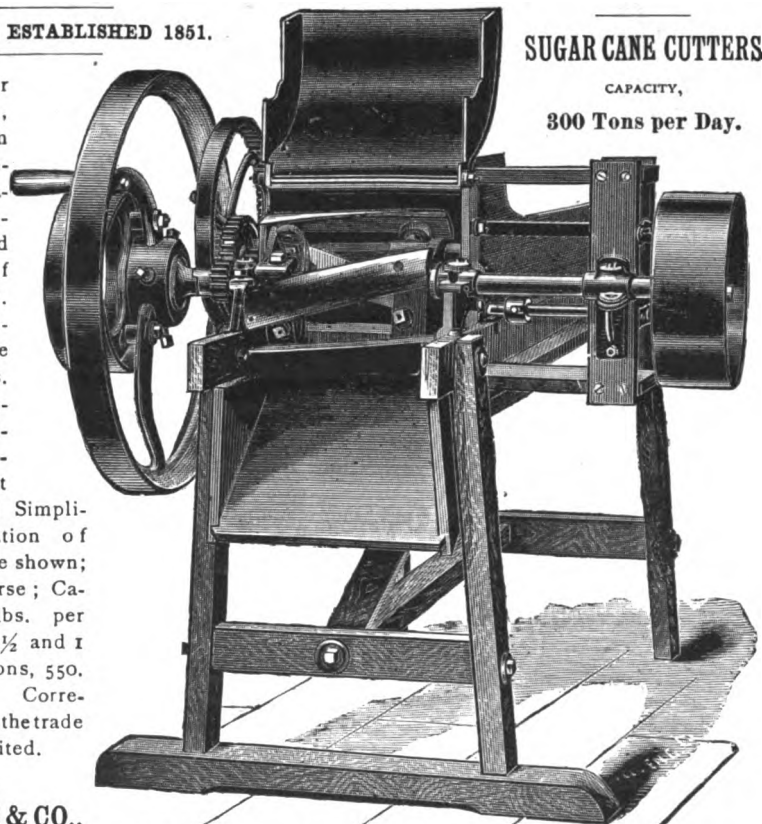
Ten Sizes, for Hand, Horse, and Steam Power. Unequalled for Capacity, Evenness of Cut and Minimum of Power required.

Largest Manufactory in the United States. Highest Standard of Excellence of Construction. Great Durability and Simplicity. Illustration of 13-inch Machine shown; Power, one horse; Capacity, 2,500 lbs. per hour; cuts $\frac{1}{4}$, $\frac{1}{2}$ and 1 inch; Revolutions, 550. Price, \$65. Correspondence with the trade especially solicited.

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Springfield, Ohio, U. S. A.**SUGAR CANE CUTTERS**

CAPACITY,

300 Tons per Day.**ROSS' LITTLE GIANT No 13A**



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FEATURES OF SUPERIOR EXCELLENCE.

They are unequalled for strength and uniformity of beauty. They are less liable to break under the influence of heat and cold during the operation of soldering or vulcanizing. They are superior in density of material to those of any other manufacturer. They can be ground as desired, and repolished—a feature not possessed by any other American goods. They can be had in every variety, gum or plain, for both rubber and metal work.

BESONDERE EIGENSCHAFTEN, WELCHE DIESES FABRIKAT AUSZEICHNEN.

Dasselbe ist unübertroffen, was Stärke und gleichmäßige Schönheit anbelangt. Es ist weniger dem Bruch ausgesetzt bei Temperaturwechsel während des Löhens oder Vulcanisirens. Dasselbe besitzt größere Dichtigkeit des Materials, als das anderer Fabrikanten. Man kann je nach Wunsch dasselbe schleifen und wieder poliren, was mit keinem anderen amerikanischen Artikel seiner Art geschehen kann. Es giebt von diesem Fabrikat die grösste mögliche Vielseitigkeit, mit Gummi oder einfach, sowohl für die Bearbeitung mit Gummielastium wie Metallen.



SUPERIORITÉ QUI CARACTÉRISE CETTE MARCHANDISE.

Cet article est sans pareil, en ce qui a rapport à la durée et beauté uniforme qui le distinguent. Il est moins sujet à se casser sous l'influence de la chaleur et du froid pendant l'opération de la soudure ou vulcanisation que n'importe quel autre. La densité de matériel est plus grande que celle de la marchandise provenant de n'importe quelle autre fabrique. On peut aiguiser et repolir cet article à souhait, tandis qu'aucun autre de manufacture américaine ne s'y prêterait. On peut s'en procurer en grande variété, soit à la gomme ou simples, tant pour de l'ouvrage en caoutchouc qu'en métal.

PRENDAS DE SUPERIORIDAD QUE DISTINGUEN A ESTOS GENEROS.

Son sin igual por la duracion y belleza uniforme que tienen. Están menos expuestos a desbaratarse bajo la influencia del calor y frío durante la operación de soldadura y vulcanización que otros de su clase. Su densidad de material sobrepasa a la de géneros de cualquier otro fabricante. Pueden amolarse según se desee; además pueden volver a pulirse, lo que no se puede hacer con ningún otro artículo americano de su especie. Se fabrican de ellos todas las variedades requisitas, sea con goma ó sin ella, tanto para obra de caucho como de metal.



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53 Carroll St., Buffalo, New York, U. S. A.

Sucursal: 195 Water Street, New York.

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— PARA —

Azucar, Arroz y Cafe.

MOLINOS PARA CANA.



Trapeche Florida con Maquina Vertic. l de Vapor.



Trapeche "Perla."

De Ochenta manos, que funcionan á vapor, agua, mano y fuerza animal.

Tachos al Vacio, BOMBAS al Vacio, DEFEADORAS, EVAPORADORAS, CLARIFICADORAS, FILTROS, TANQUES, CENTRIFUGAS, &c., &c.

TRILLADORAS, DESCASCADORAS, SEPARADORAS y PULIDORAS para ARROZ.

DESCASCADORAS, SEPARADORAS y PULIDORAS PARA CAFE.

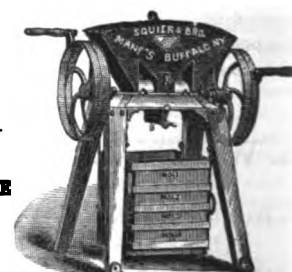
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CALDERAS, BOMBAS PRENSAS PARA GOMA ELASTICA Y TODA CLASE DE MAQUINARIA PARA AGRICULTURA.

— Pidanse Catálogos Ilustrados en español. —



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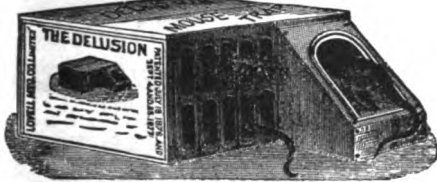
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The **Syracuse Barrow.**
Strongest and neatest Barrow made with springs, for merchants and mechanics delivery. Has Watkin's Patent Steel Wheel, Steel Axle and Legs. Weighs 33 lbs.; will carry 500. Tasty design, elegant finish. Good Discount to the Trade.

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THE DELUSION MOUSE TRAP.

52,932 sold in one month.



The Mouse goes in to get the bait, And shuts the door by his own weight, And then he jumps right through a hole, And thinks he's out; but bless his soul, He's in a cage, some how or other, And sets the trap to catch another.

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The only Governor for Vacuum Pumps. Circulars, 22 CENTRAL ST., BOSTON, U. S. A.
CASTLE & COOKE, Honolulu, A. FULLER, Real Num. 1, Cardenas, Cuba, } Agents.

For Introduction.
On Receipt of \$21.00, We deliver in New York, for Export, one dozen 10-inch Special Boxes, as in cut. We make 13 Sizes, heavy tin, best finish, all secured by our "Champion" Keyless Locks. List free.

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JOHN STEPHENSON CO.,
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Tram-Car Builders

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Superior Elegance, Lightness and Durability. The Result of 50 Years' Experience.

Adapted to all Countries and Climates. Combining all Valuable Improvements. Shipped to Foreign Ports with greatest care and at Most Favorable Rates.

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Rodas FUNDIDAS TEMPERADAS para
ESTRADAS DE FERRO,
CARRIS URBANOS, e CARROS de MINAS,
Rodas em bruto, furadas, ou ajustadas a eixos.

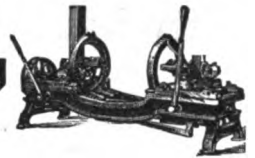


BARREL TRUSSER.

E. & B. HOLMES,

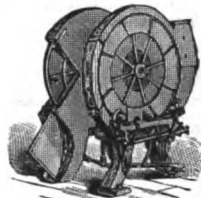
BUFFALO, N. Y.,

— MANUFACTURERS OF —



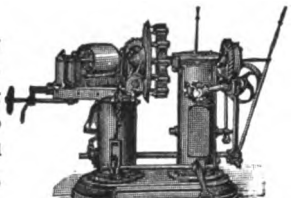
CHAMFERING, HOWELING, AND CROZING MACHINE.

BARREL MACHINERY.



STAVE JOINTER.

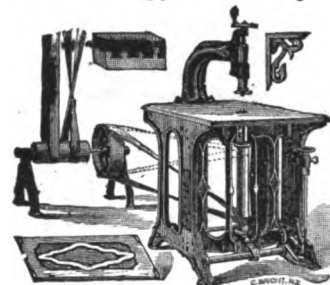
Chamfering, Howeling and Crozing Machines, Stave Dressers, Stave Jointers, Hoop Drivers, Crozing Machines, Heading Jointers, Heading Dressers, Beer Stave Benders, Stave Cutters, Leveling and Trussing Machines, Cylinder Stave Saws, Heading Saws, etc.



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STAVE, BARREL, KEG, AND HOGSHEAD MACHINERY.

Paneling, Variety Moulding, and Dovetailing Machine!



Cuts Panels of any design or style of Mold in the solid wood, with neatness and dispatch. It is a first-class Shaper, Edge, and Surface Moulder. Does general dovetailing with thick or thin stuffs. Simple, Durable, and Efficient.

Send for Pamphlet and Sample of Work.

Improved Solid Steel Cutters

For all kinds Variety Moulders, made to order and warranted by the

BATTLE CREEK MACHINERY CO., Battle Creek, Mich., U. S. A.



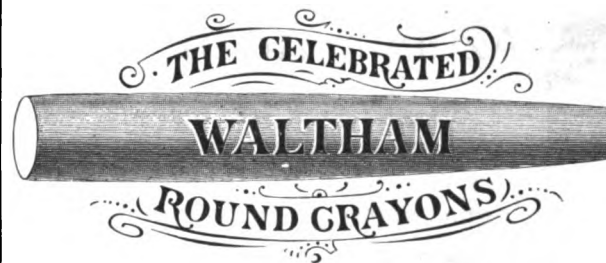
MANUFACTURERS OF THE CELEBRATED

WALTHAM SCHOOL CRAYONS,

Carpenters' Chalk and Tailors' Crayons.

Our NEW WHITE DUSTLESS ENAMELED CRAYON, WITH PURPLE-TINTED COATING,

Is universally acknowledged to be the best in market.

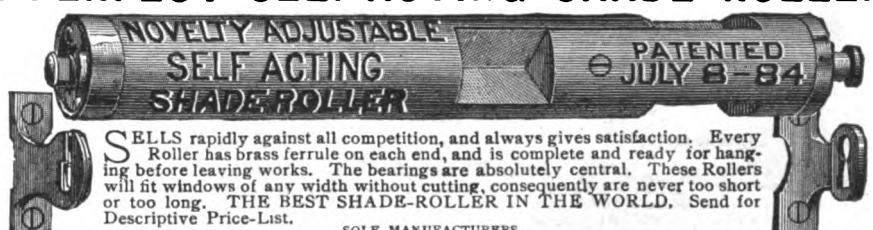


ALL OUR CRAYONS ARE made of the finest material, and our Enameled Crayon is particularly desirable in being Free Marking, Strong, Clean in handling, and as Perfectly Dustless as it is possible to have a Crayon and make a mark.

Our Colored Crayons exceed all others in brilliancy, and are Enameled without extra charge. Samples Free to the Trade. Prices as low as the lowest.

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A PERFECT SELF-ACTING SHADE ROLLER.



SELLS rapidly against all competition, and always gives satisfaction. Every Roller has brass ferrule on each end, and is complete and ready for hanging before leaving works. The bearings are absolutely central. These Rollers will fit windows of any width without cutting, consequently are never too short or too long. THE BEST SHADE-ROLLER IN THE WORLD. Send for Descriptive Price-List.

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Improvements fully covered by Patents.



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— Casa Establecida en 1835. —

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Hachas y Hachuelas

DE CALIDAD SUPERIOR,

HACHAS PARA JÓVENES, HACHUELOS PARA CAZADORES,

AZUELAS DE MANO, HACHAS DE CARPINTERO, PICOS, AZADONES DE PETO Y AZADAS PARA SACAR TUBÉRCULOS DE PLANTAS.

Se garantiza que son las herramientas mejor atemperadas que ofrece el mercado.

Se enviarán Catálogos ilustrados á solicitud.

CLEVELAND, OHIO, E. U. de A.



Cable Address, "Novelty."

Cable Address, "Novelty."

THE PHILADELPHIA NOVELTY MFG. CO.

1426 Callowhill St., Philadelphia, Pa., U. S. A.,

32 Howard St., New York, U. S. A.,

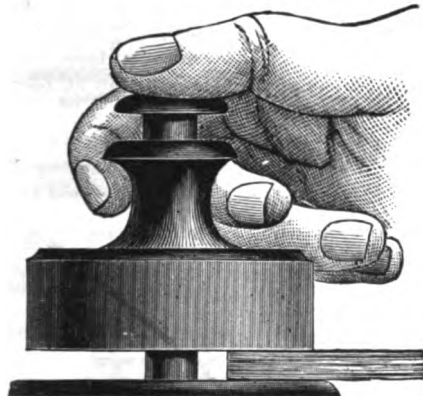
SOLE MANUFACTURERS OF THE

NOVELTY, KEYSTONE and ORIGINAL

PAPER & FASTENERS,

Combination Paper-Weight and Clip,

STANDARD PEN RACK.



Fountain Pens, Postage-Stamp Holders, Towel Holders, Match Boxes, Brackets, Mining Knives, Paper Clips, Bill Files, Hair Crimpers, Glass Cutters, and a full line of Patented American Novelty. Send for Illustrated Catalogue and Reduced Price List for Export.



The Eberhard Manufacturing Co.

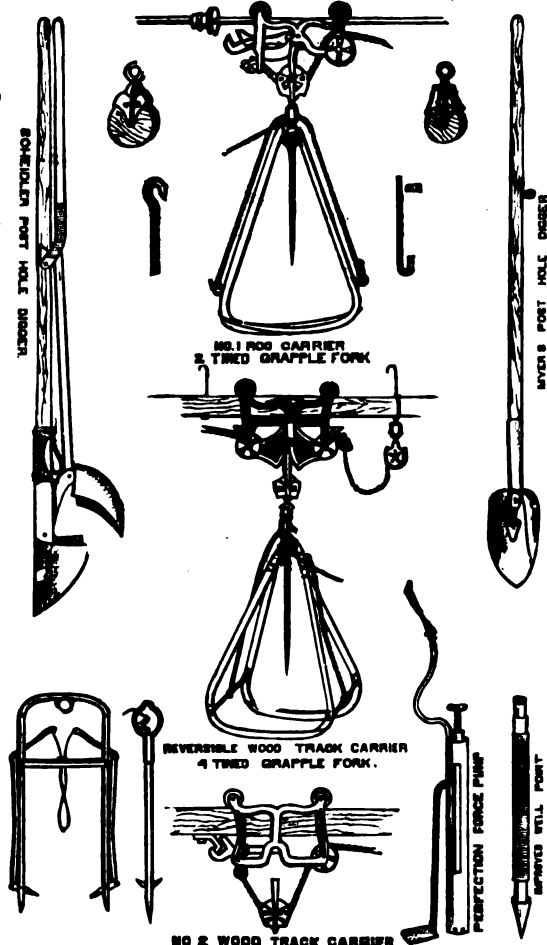
CARRIAGE, WAGON AND SADDLERY HARDWARE,

And Malleable Iron Castings, TO ORDER.

We also have facilities for making Metal Patterns and finishing Castings when desired, doing Japanning and X C or Tin Plating.

CLEVELAND, OHIO, U. S. A.

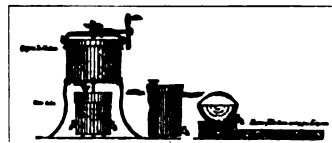
MYERS, HOUSEL & CO., Canton, Ohio, U. S. A.

GARDEN FORCE PUMPS, WELL POINTS, PULLEYS, &c.
Send for Prices and our Handsome Show-Cards and Descriptive Catalogue.Manufacturers of HAY FORKS and CARRIERS, POST-HOLE DIGGERS.
Our Goods are Warranted Reliable and Standard in Quality.

A Full Line of Samples at Permanent Exhibition, New York.

Artificial Ice-Making AND REFRIGERATION.

Entirely Modified and Simplified.



Water at 100° Fah. can be lowered to 0° Fah. in one hour.

No steam engine, no compressors, no gauges, no volatiles, no engineers.

A common laborer can run easily a machine making 50 to 100 pounds of ice per hour (instead of 6 H. P.) A boy can run a machine of 25 lbs.

Nothing to get out of order, the machine being as simple as a butter churn.

These machines make Ice or Ice Cream, or a cold solution at Zero which can be utilized for cooling soda-water apparatus, meat safes, &c.

The cost of the solution is nominal.

Practically no salt whatever is lost. The evaporator returns every particle of salt. If in a hot climate, run the solution on a wooden or asphalt floor, and you can dispense with the Evaporator when the sun shines.

The production of cold is mathematically certain.

Large profits can be made, and every family, druggist, hotel, ship and hospital in warm countries need these machines.

ETIENNE GILLET.

New York, U. S. A.,

SOLE AGENT and GENERAL MANAGER of the "DRY-AGENT PROCESS" of MAKING COLD.

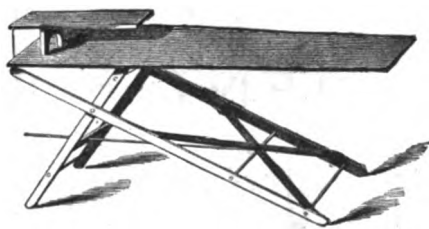
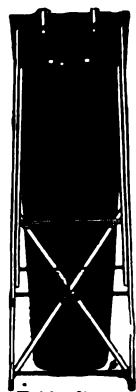
Patented June 10, 1884, in the United States and foreign countries

THE K. & W. MANUFACTURING CO.,

CHILlicoTHE, OHIO, U. S. A.,

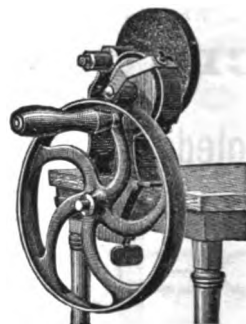
— MANUFACTURERS OF —

Patented Specialties, and Brass, Iron and Steel Screws of any Design.

**SPECIALTIES:**

Patent Friction Emery Grinders; Ward's Folding Ironing Tables; Champion Bosom Stretcher; K. & W. Clothes-Horse; Eureka Carpet Stretcher, &c., &c.

All goods securely boxed and delivered in New York, Boston, Philadelphia or Baltimore free of charge. Sample orders solicited. References: R. G. Dun & Co.'s Commercial Agency, or Publishers of the American Mail and Export Journal. Send for Catalogue and Price List.



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B. A. FAHNESTOCK'S VERMIFUGE.

The Great Remedy for Worms in Children and Adults.

Be particularly careful to observe that the initials are "B. A.," and thus avoid imitations.

J. E. SCHWARTZ & CO., Sole Prop'rs, Pittsburg, Pa., U. S. A.

— BETWEEN —

BY TAKING THE NEW LIMITED TRAIN, WITHOUT
EXTRA CHARGE.

CHAS. PAINE, A. E. CLARK,
Gen'l Supt. Gen'l Pass'r Agt.
CLEVELAND OHIO U. S. A.

- AND -

Parlor Cars between Cincinnati and Toledo.

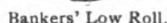
C. C. WAITE,
Vice-President.

GLASS

CONTENTS
OF THE
SHORTMEASURE
BOTTLE
POURED INTO ONE
OF LePAGE'S BOTTLES

**STRONG AS IRON,
SOLID AS A ROCK.**
Indispensable in every household.

Correspondence solicited for Export Trade. LE PAGE'S Glue is put up in bottles, cans and barrels. Address **RUSSIA CEMENT CO., Gloucester, Mass., U. S. A.**



ESTABLISHED 1845.

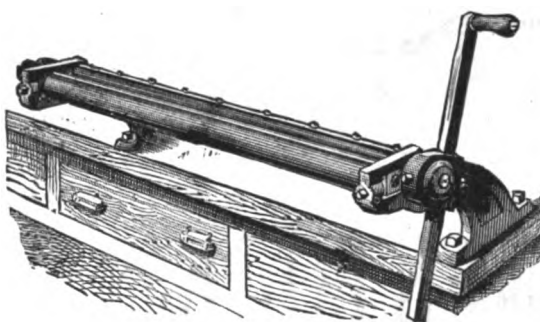
Manufacturer and Exporter of High and Low Roll Cylinder
and Flat Top

Office Furniture and Fixtures.


 Write for Illustrated Catalogue and Price List. Special attention to Export Trade.

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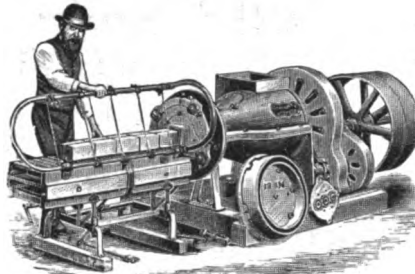
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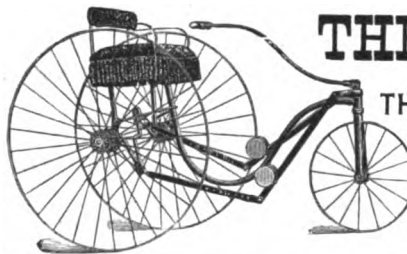
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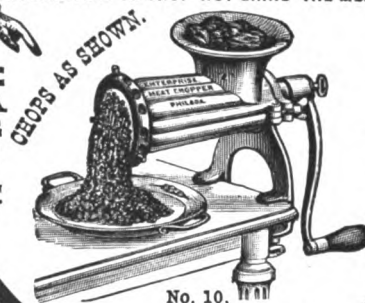
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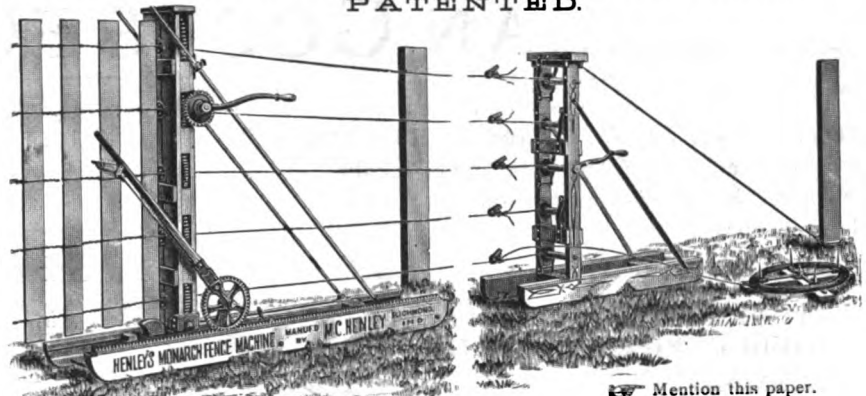
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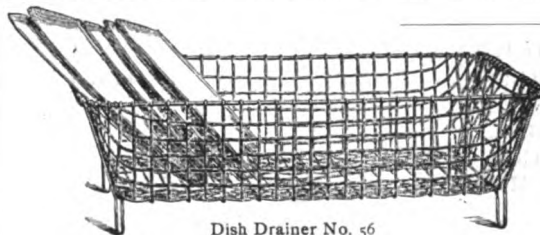
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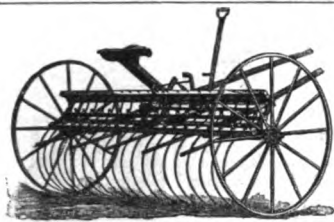
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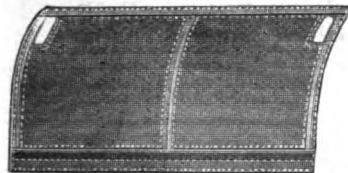
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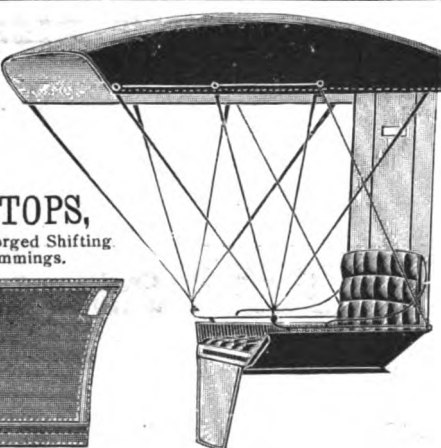
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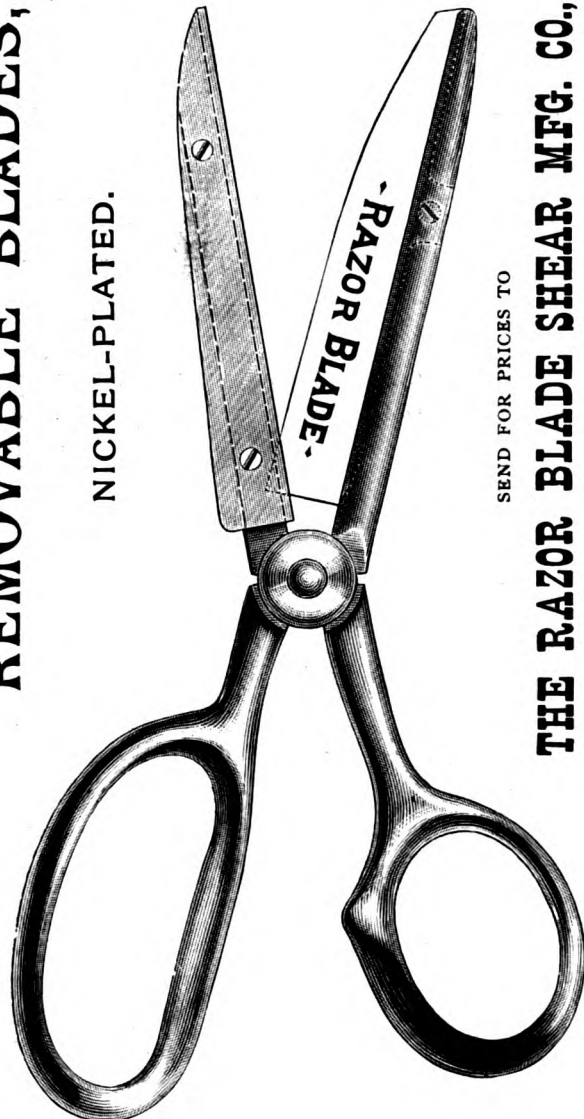
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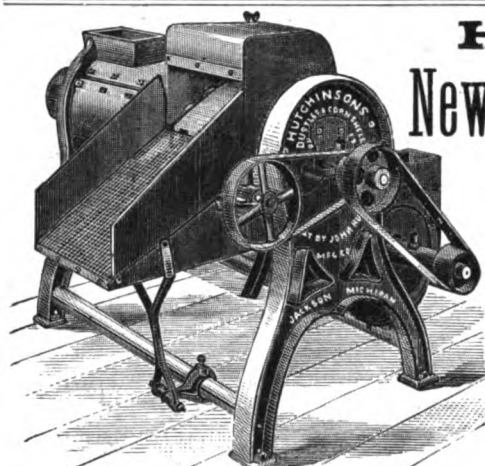
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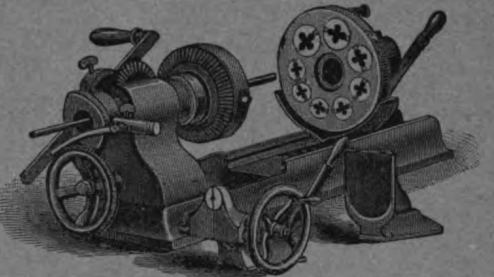


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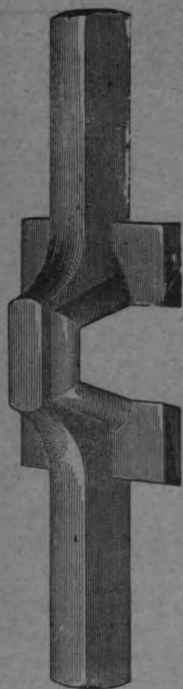
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NEW YORK, AUGUST, 1886.

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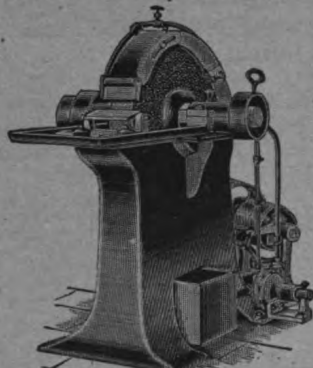
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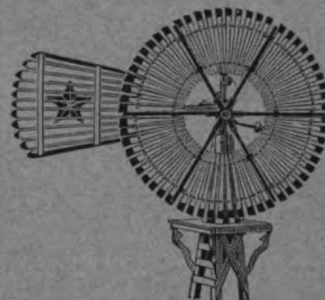
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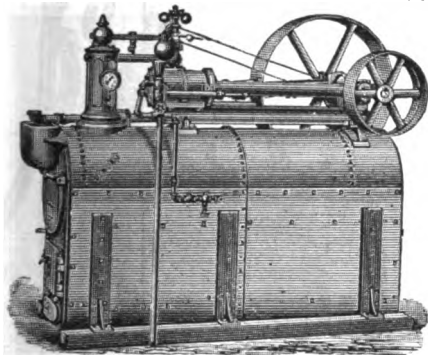
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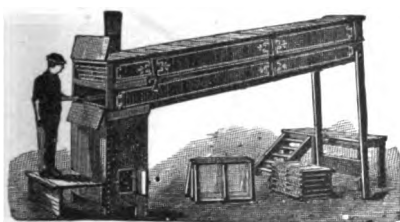
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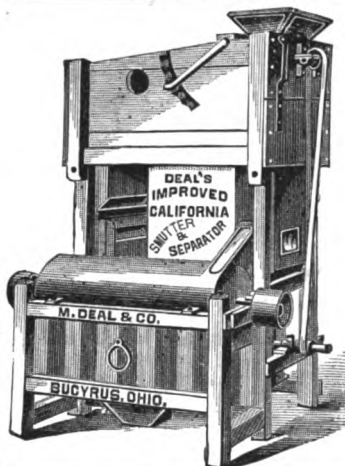
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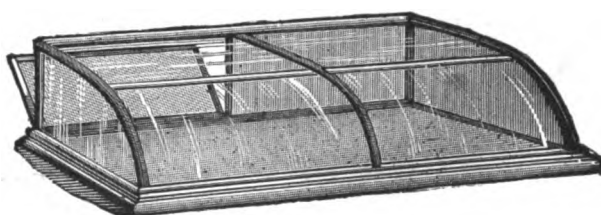
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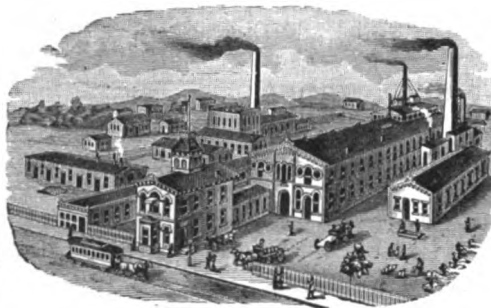


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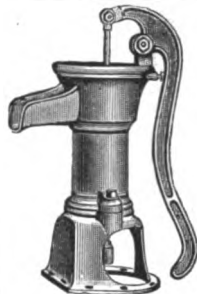
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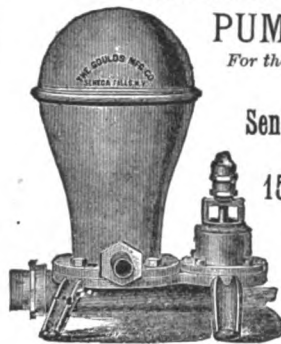
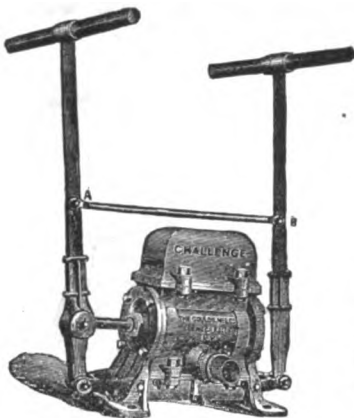
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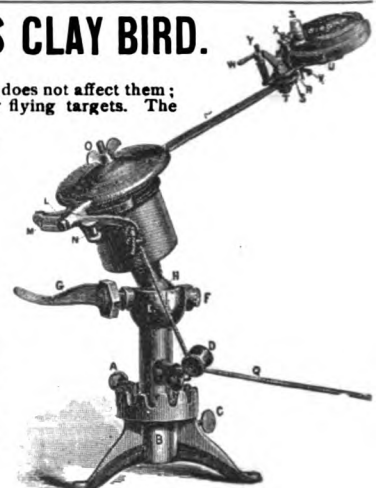
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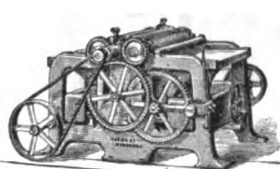
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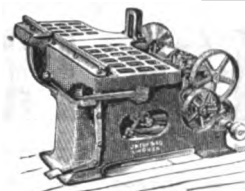




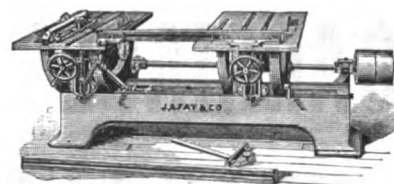
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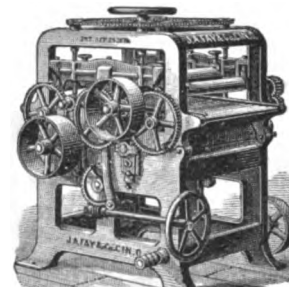
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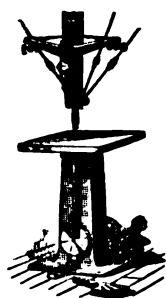
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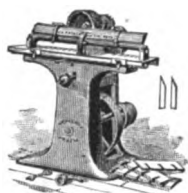
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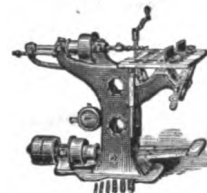
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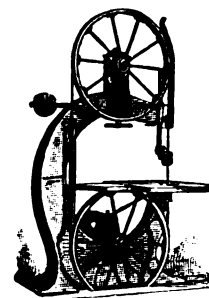
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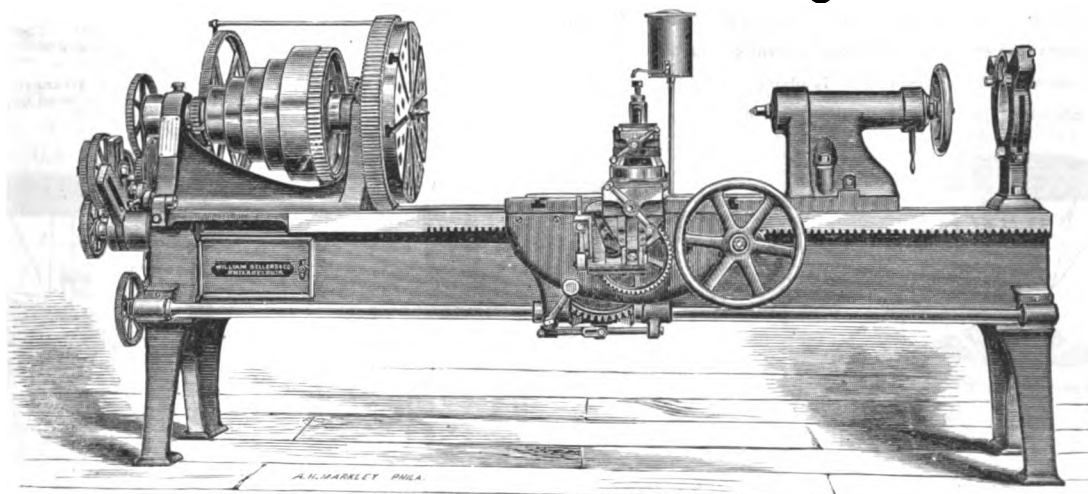


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Rides with perfect ease over the roughest roads. Is adapted for speeding or slow driving.
The livery trade is adopting it in preference to all others. Weight, 320 lbs.



No. 120.—DAVIS CALIFORNIA BUSINESS BUGGY.

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Hung on triple Swede steel springs, 56 inches in length. The side springs are 1½ inch, four plate, taking the place of the ordinary wooden side bars; are attached to head-block and rear axle by shackles.
These springs, by their simplicity of construction and arrangement, impart a riding quality that, for fast or slow driving over mountainous or level roads, has no equal, regardless of price. Weight, 300 lbs.



No. 89.—COAL BOX STYLE.

Body, 47 inches long; 26 inches wide.
Wheels, Axles and Tire, same as described beneath illustration of style No. 51. Weight, 325 lbs.



No. 105.—VICTORIA PHAETON.

Body, 5 ft. 11 inches long; 2 ft. 6 inches wide.
Wheels and Axles, same as described beneath illustration of No. 51.
Tire, finest round edge steel, 1¼ inch.
Weight, 535 lbs.



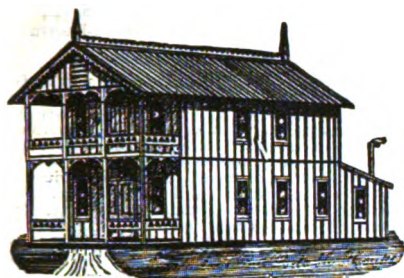
No. 107.—EMPRESS BAROUCHE.

Description beneath illustration of style No. 105 applies to this vehicle. Weight, 535 lbs.

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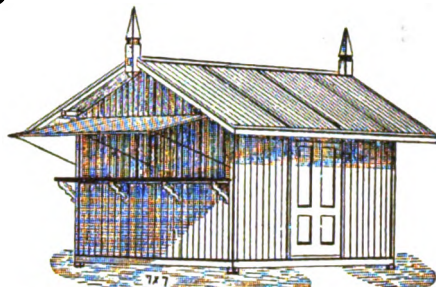
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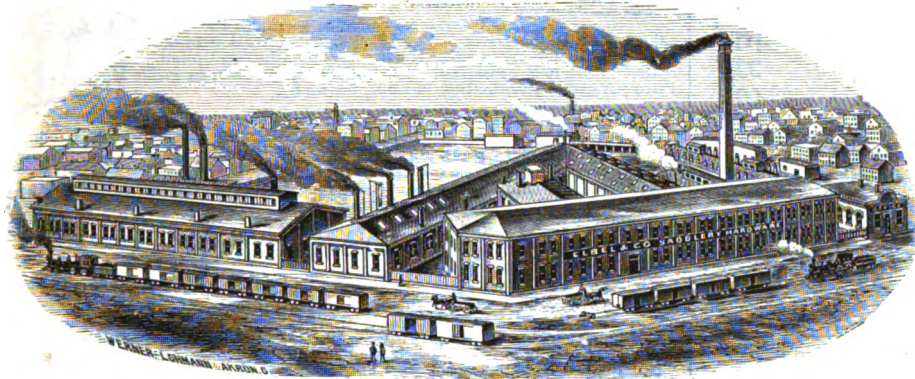
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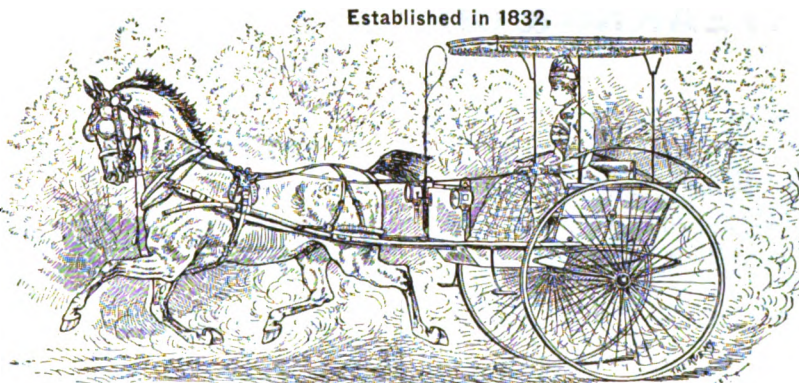
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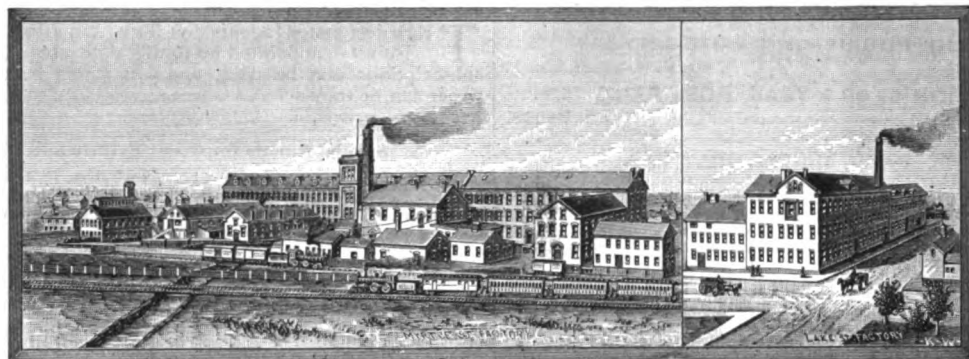
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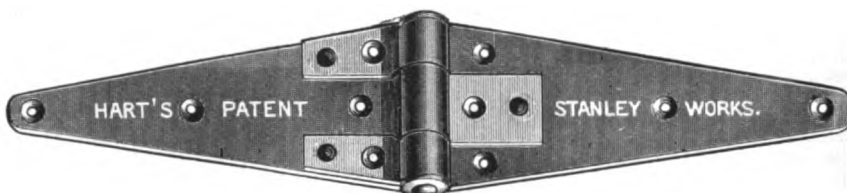
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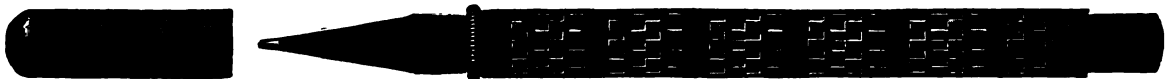
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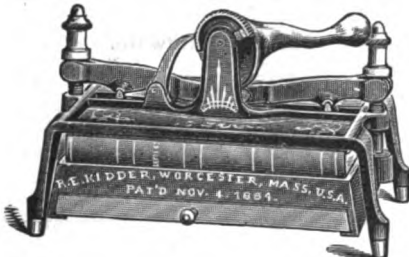
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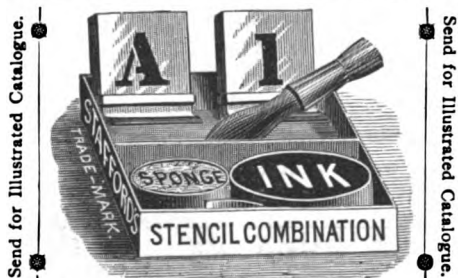
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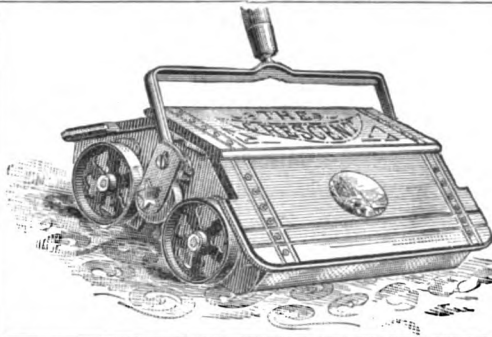
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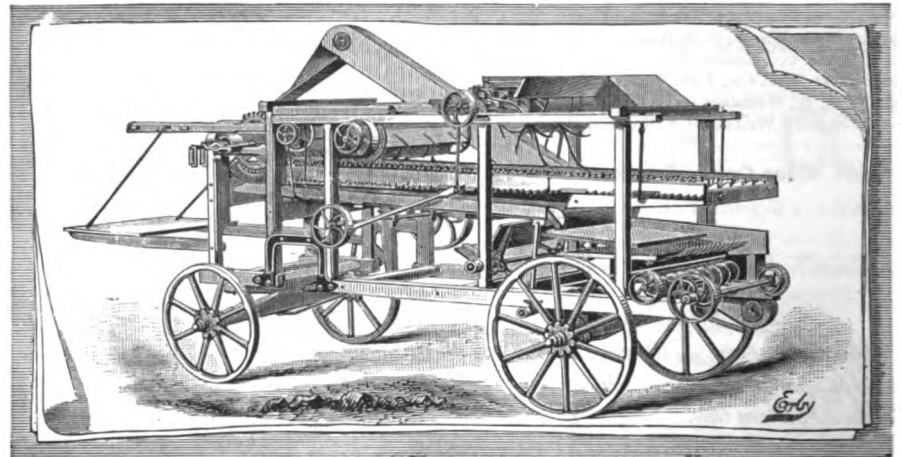
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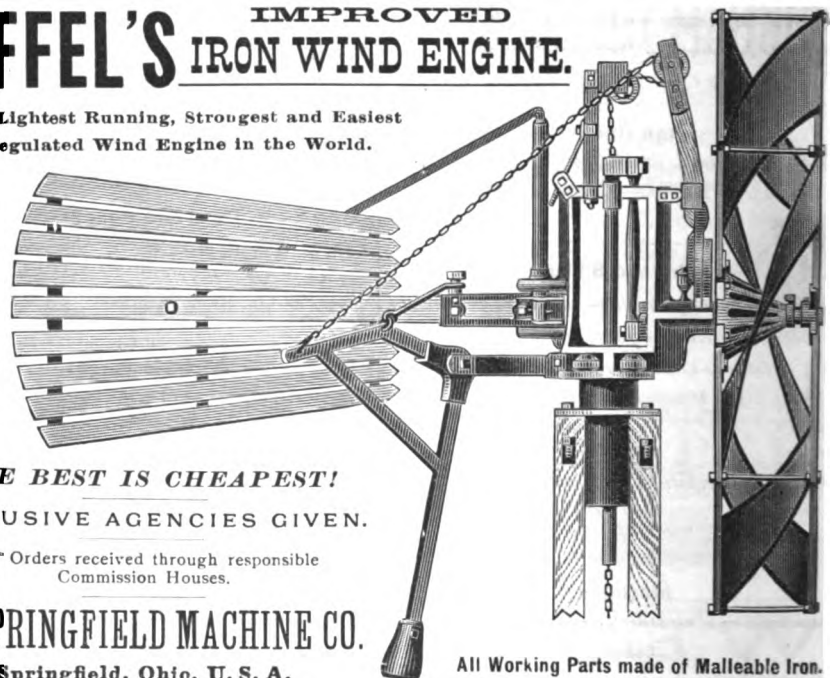
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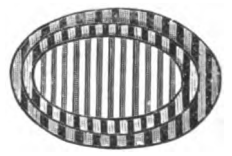
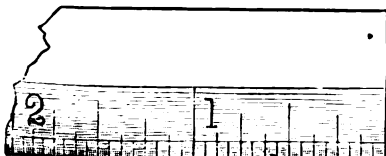
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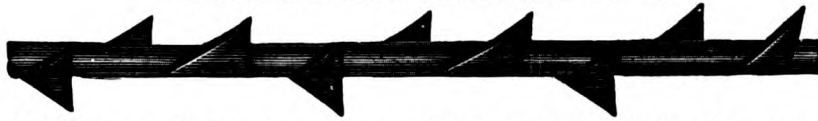


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THIS WIRE contains six times as many Barbs per foot as any other, and is the only Fence that is as efficient against small as against large animals. It will not slip through the Staple, and is the only Barb Wire that is GALVANIZED AFTER IT IS FINISHED, which adds greatly to its strength and durability. This Wire is made on an entirely different principle from any other, is amply secured by Letters Patent, and no infringement upon any other Patent Right.

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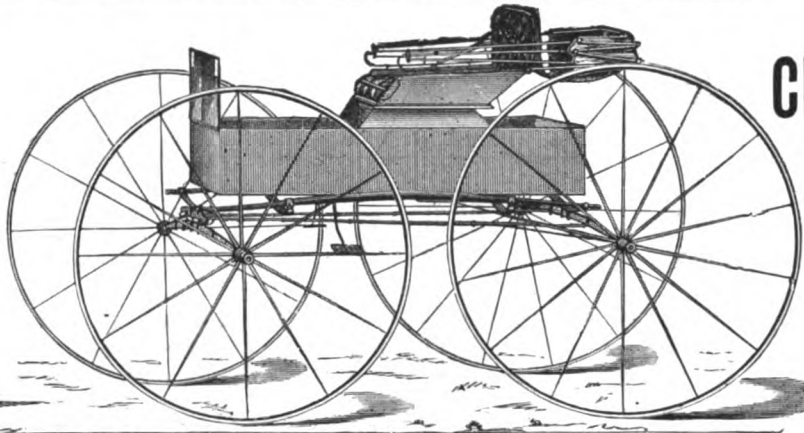
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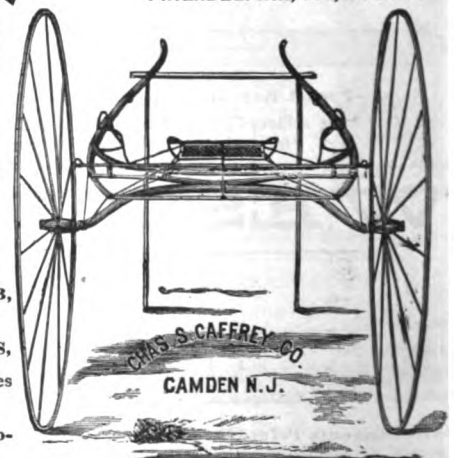
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INCLUDING ALL STYLES
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And other Famous Horses throughout the world.

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The Highest Award to any Exhibitor in Horology,

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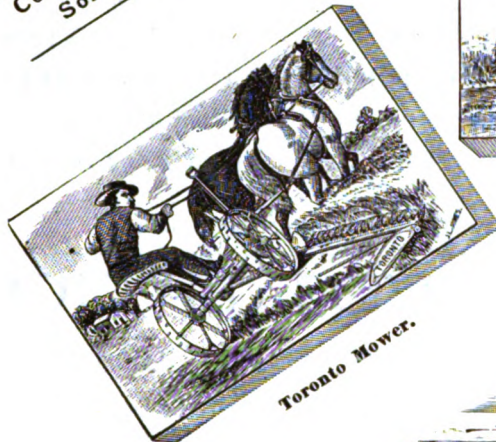
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Toronto Mower.

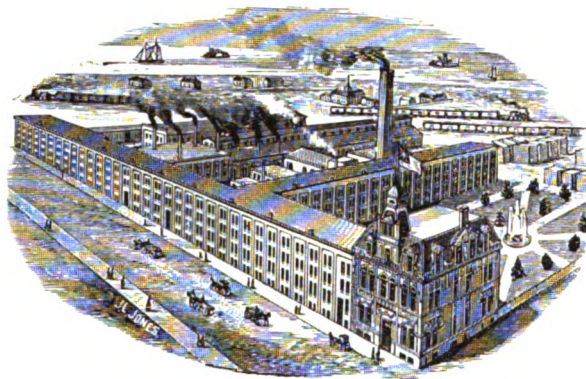


Toronto One Horse Mower.

Catalogue Upon
Application.



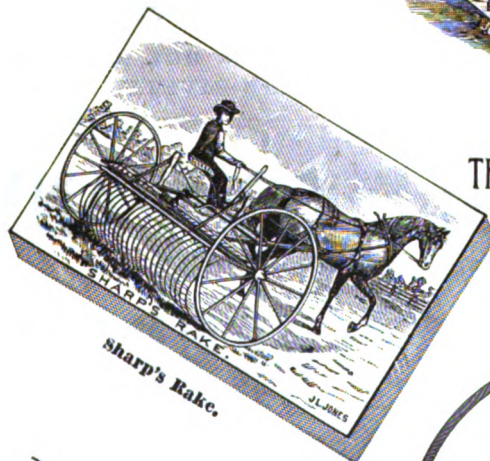
Massey Mower.



OFFICES AND WORKS OF
The Massey Manufacturing Co.

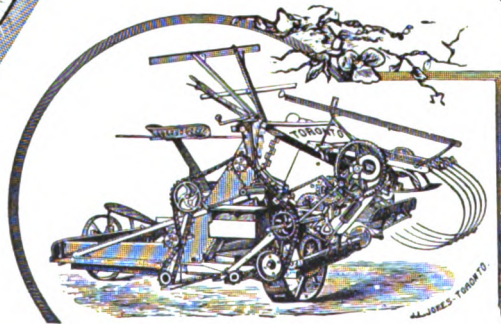
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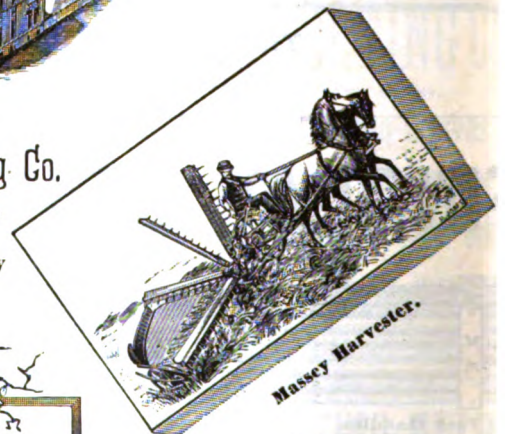


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Established
in 1847.



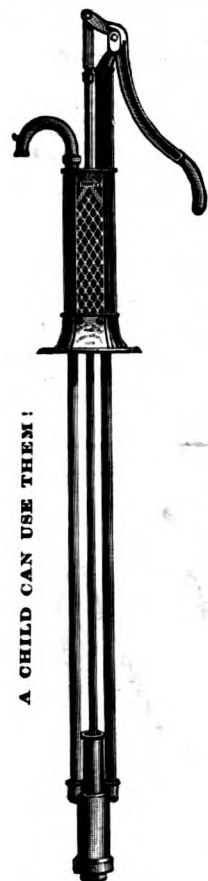
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Massey Harvester.

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38 Years.

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A CHILD CAN USE THEM!

THOUSANDS IN USE!

Springfield, Ohio,
U. S. A.,Manufacturers
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WIND
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Works easy and throws a constant stream. Has Porcelain-lined and Brass Cylinders. Is easily set. Is the Cheapest and Best Force Pump in the World for Deep or Shallow Wells. Over 100,000 in use. Never freezes in winter. Send for circulars and prices, giving depth of well.

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LAWN MOWER.

Made in 10, 12, 14 and 16 in. cut.

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Lightest Running!

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OTHER
MACHINES
MADE.

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NEW FORCE FEED.

Changes Quantity without change of gears.

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Be sure and buy the Buckeye if you want the best.

Who can afford to do without one?

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Sucursal: 195 Water Street, New York.

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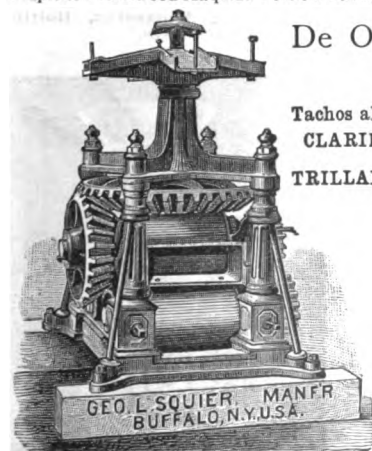
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PARA ARROZ.

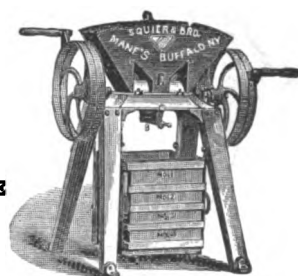
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El Descascarador Americano de Arroz, No. X.
Capacidad; Cinco Cargas por dia de diez horas.

Descascaradora de Café.

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Delivers bundles any desired size. The driver, in his seat, raises or lowers the platform, both sides alike, or tilts the bar to gather lodged grain. Draft light. Machine simple, strong, durable, and no other Reaper delivers the grain in so good order for binding.

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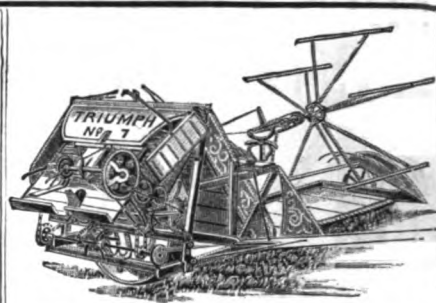
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5½ Feet Cut, will fold so as to Pass Through a 10 Foot Gate or opening. Has the simplest and most adjustable reel, and it is the Strongest, Most Durable and Best Working Binder in the Market.

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MANUFACTURERS OF THE

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SUCCESSFULLY IN AUSTRALIA, SOUTH
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SPECIAL ATTENTION GIVEN TO EXPORT ORDERS.

Correspondence Solicited.



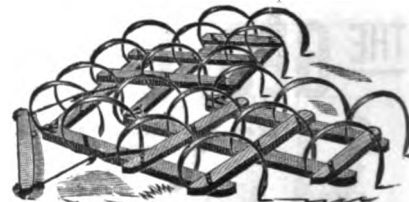
One-Horse Spring Tooth Cultivator.



Spring Tooth Broadcast Seeder.



Spring Tooth Corn and Fallow Cultivator.



The Original Spring Tooth Harrow.

“MUNSON” PORTABLE MILLS, MUNSON BROTHERS,

Proprietors and Manufacturers.

FOR THE MAKING OF WHEAT FLOUR AND CORN MEAL.**FRENCH MILLSTONES,**

Finished and poised to correspond to the machine. Noiseless Feeding Apparatus, Bolting Cloth, and all sorts of accessories for Millers' use, at Moderate Prices.

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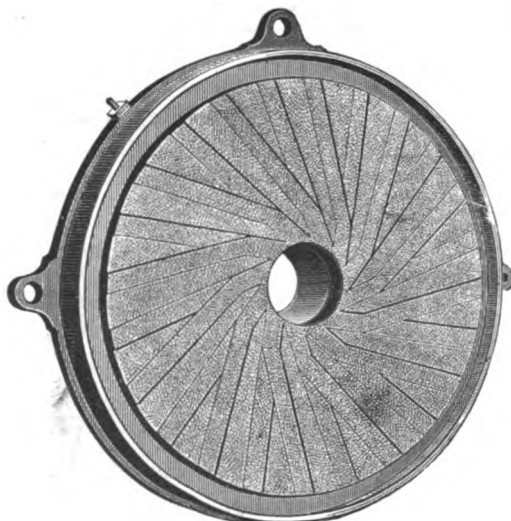
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Para moler harinas de trigo y maíz,

PIEDRAS FRANCESAS PARA MOLINOS,

Acabadas y equilibradas á máquina. Alimentadores
Silenciosos, Telas Para Cernir, y toda clase
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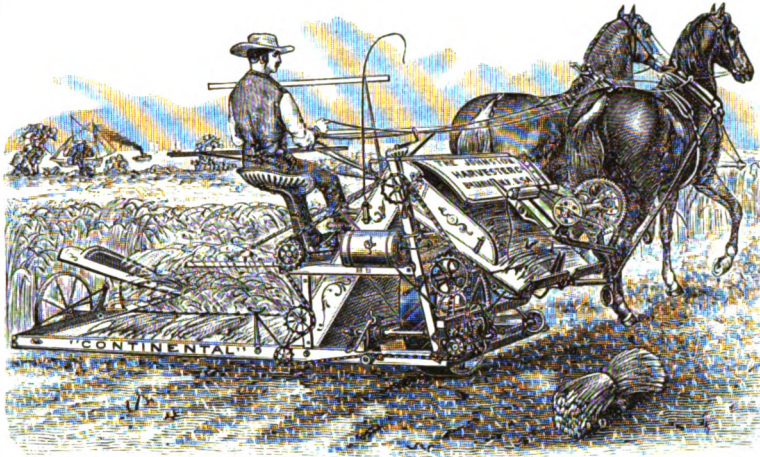
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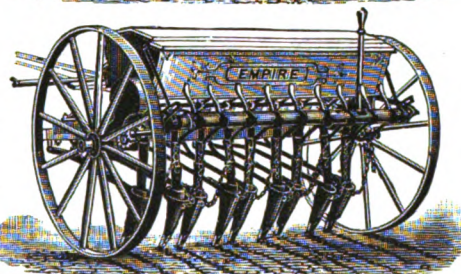
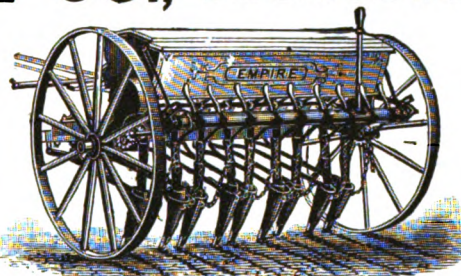
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New Dustless Iron Corn Sheller

SHELLS EIGHTY TO ONE HUNDRED BUSHELS
Shelled Corn per hour; is dustless; shells absolutely clean; wastes no shelled corn. The bearings are cast solid into the frame and babbitted. The shelling surface is made entirely of wrought-iron.

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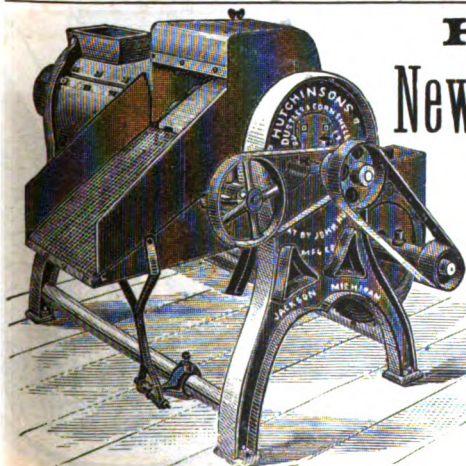
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JACKSON, MICH., U. S. A.



BACK VIEW.



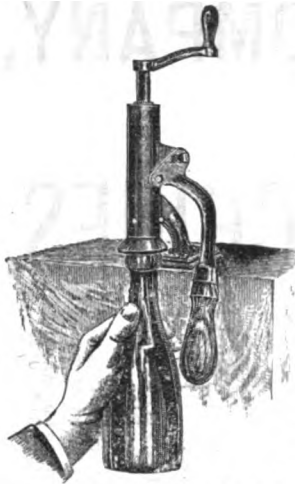
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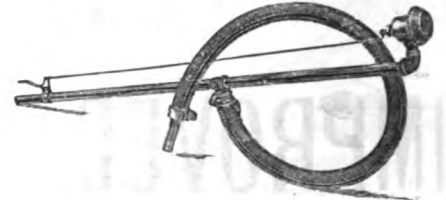


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The only simple and efficient Cork Puller invented. Nickel-plated. For use in hotels, club-houses and houses. Write for full particulars and directions for use.

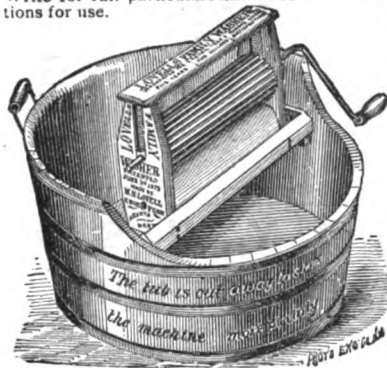
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Keystone Wringer.
Adams' Ironing Table.
Adams' Safety Step Ladder.
Lovell Lock Hinge Step Ladder.
Reversible Clothes-Horses.
Excelsior Clothes-Horses.

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Novelty Carpet Whips.
Cyclone Mouse Trap.
Ideal Mouse Trap (Self-setting).
Adams' Five Wheel Truck.
Keystone Socket Rake,
&c., &c., &c.

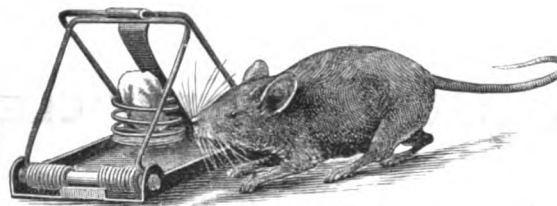


HURLEY'S AUTOMATIC STEAM FLUE CLEANER. (PATENTED).

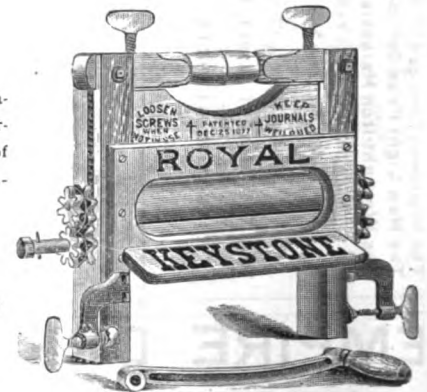
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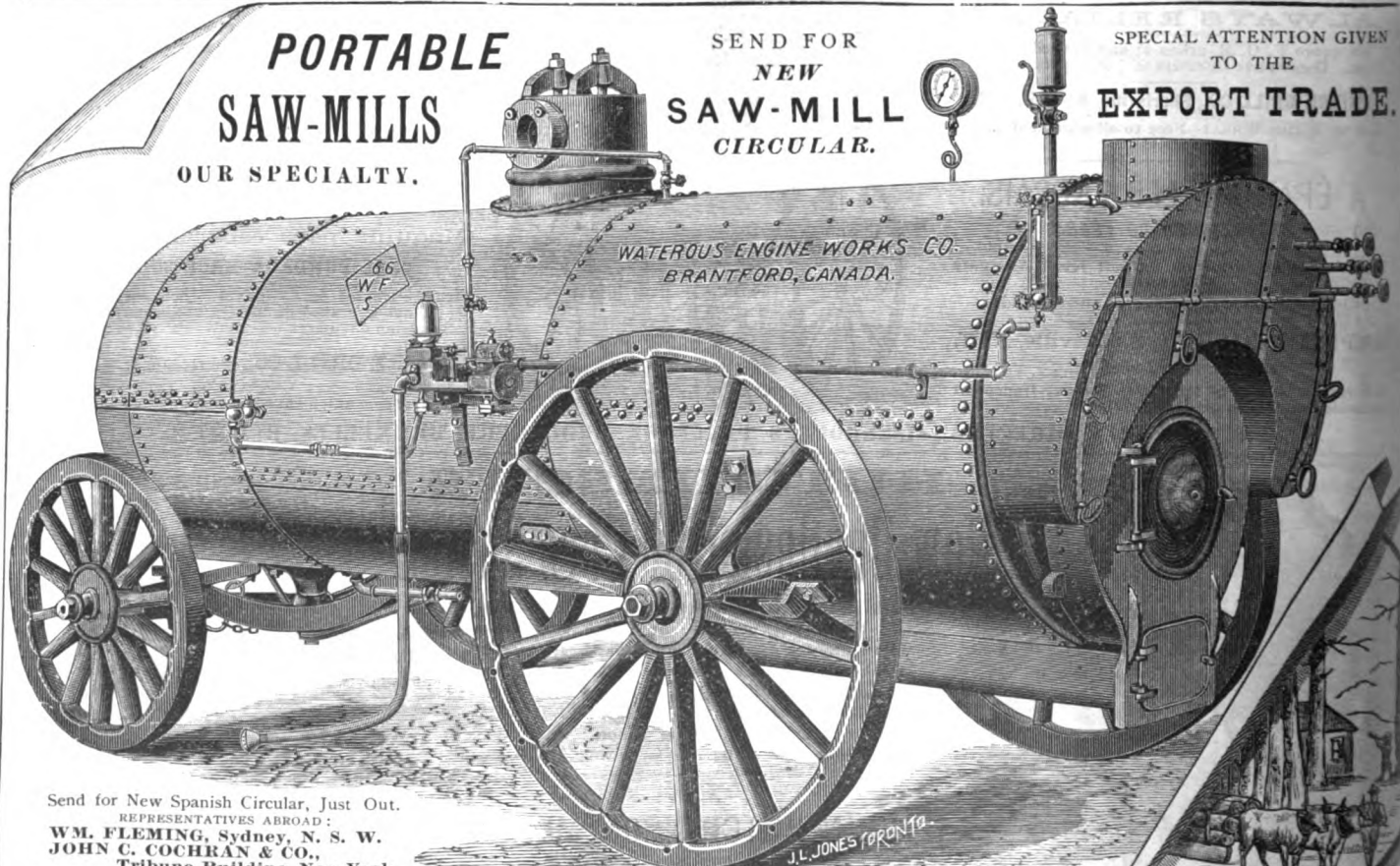
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From Second-Growth Timber.

FINE LIGHT WHEELS

— AND —

GEAR STOCK

A SPECIALTY.

CORRESPONDENCE SOLICITED.

Lancaster, Pa., U. S. A.

BUCHANAN WIND-MILL CO.,

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New Construction of Wind-wheel.
Better than any other. Sails cannot rot or become loose.



Simple, Durable. Large Bearings, which reduces wear. Automatic Governor. Best Mill in Market.

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THE LATEST & BEST IMPROVED

BRICK MACHINES

FOR BOTH STEAM AND HORSE POWER.



WEIGHT 7200 LBS.

STEAM POWER BRICK MACHINE
READY FOR PULLEY.

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SEE ADVERTISEMENT

— OF —

PERMANENT EXHIBITION,
ON PAGE 38.

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Anchor Brand Tackle Blocks and Trucks

ALL KINDS and SIZES.



Harcourt's Patent.
Inside Iron
Strapped, with Swivel Hook.
No. 31, if Iron Bushed.
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New York Pattern Truck.
Half Ironed.

Our line includes everything called for by the Export Trade in the way of Tackle Blocks and Warehouse Trucks, as well as a number of Specialties. Write for Illustrated Catalogue and Price List. Our Phosphor-Bronze Self-Lubricating Bushed Blocks are the best for heavy work. In ordering any of these goods, specify for the "Anchor Brand," and thereby secure the best the market affords.

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Wrought-Steel Cooking Ranges.

A STRONG, FIRST-CLASS WROUGHT-HAMMERED
PLATE STEEL RANGE.

All of the Latest Improvements.

Perfect Construction.

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Manufactured in 288 varieties. Made specially for the various kinds of fuels.

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No. 9.—With six 9-inch holes, 25×23 inch oven and 28×23 inch warming oven.

Also made in "Double-Oven" sizes.

NOTE THE FOLLOWING FEATURES OF
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Extra heavy water heater and connecting pipes. Patent triangular three-surfaced dumping and shaking grate, easy of action, durable and cleanly. Patent drop-pouch, chute-feed door, double-lined and ventilated. New fire-lining of novel construction. Drop oven door with automatic gravity latch. Skeleton bracketed shelf, strong and neat, without obstructing the light from top cooking surface. Oven extra braced to prevent warping. All corners made of angle iron, giving extra strength and perfect finish. New rolling direct draft-damper. Steel polished edges, nickel fittings, black japanned, &c.

Perfect in Construction.
Reliable and Durable.

Our extensive line of "Grand Active" Cooking Apparatus embrace a variety from the smallest to the largest, suitable for the kitchens of Private Dwellings, Boarding-Houses, Restaurants, Hotels, Public and Private Institutions, Boarding-Schools, Colleges, Universities, Academies, Seminaries, Convents, Hospitals, Asylums, &c.

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COCINAS DE ACERO FORJADO MODELO "GOLDEN ANVIL" (YUNQUE DE ORO).

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Están provistas de todos los perfeccionamientos más recientes.
Su construcción es absolutamente perfecta.

Se han empleado los mejores materiales.

Se fabrican de ellas 288 variedades, especialmente para las varias especies de combustible.

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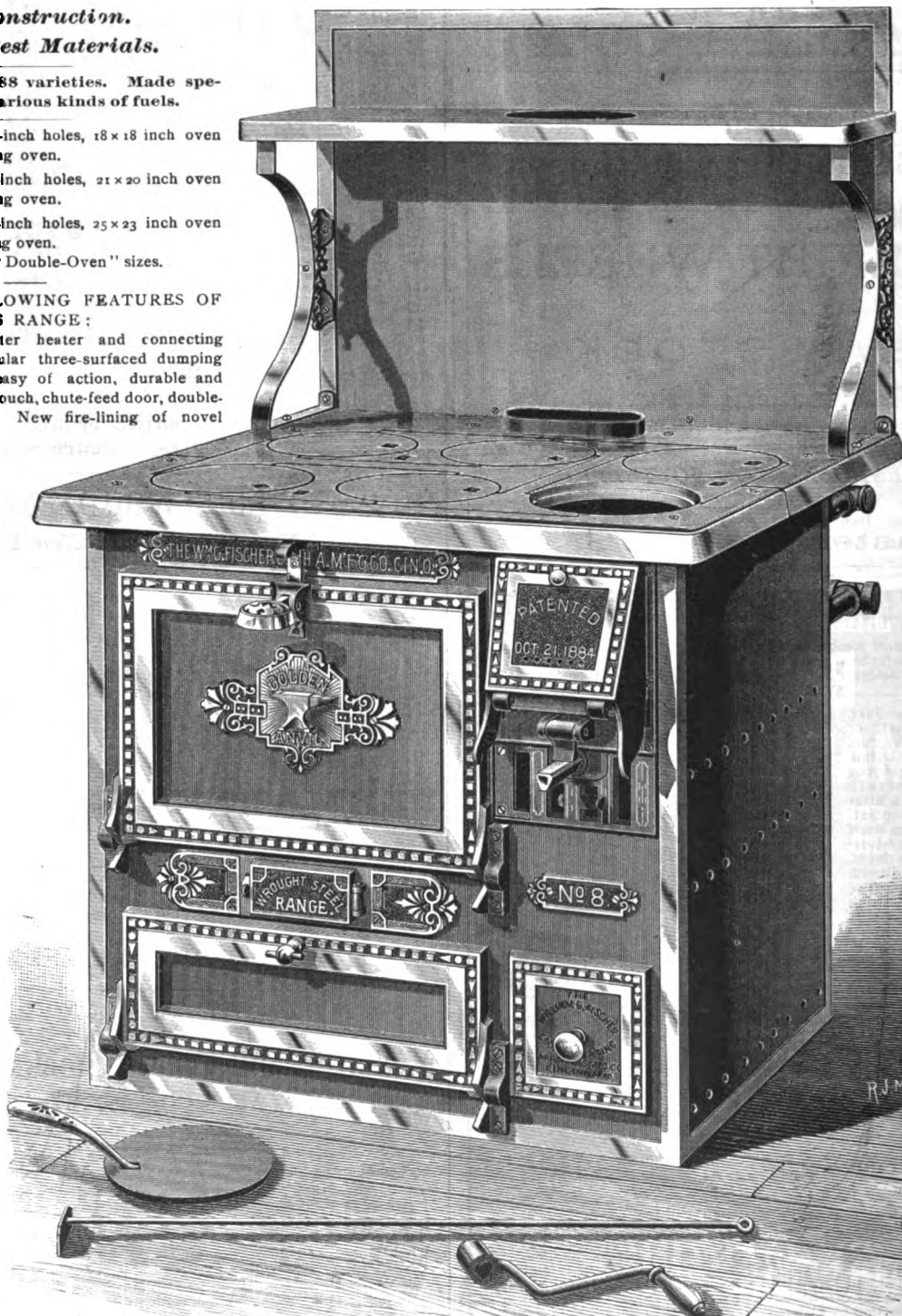
Se fabrican también tamaños de "doble horno."

Nótese las siguientes particularidades que distinguen esta cocina: Calentador de agua y tubería de alimentación de resistencia excepcional. Parrilla triangular, barras de volteo y movimiento, de patente, con tres superficies. Funciona con la mayor facilidad, es duradera y limpia. Holsillo móvil de patente, puerta de alimentación forrada doble y ventilada. Revestimiento de construcción enteramente nueva. Puerta de horno móvil con pestillo de gravedad automático. Repisa reforzada, sólida y bien construida que no excluye la luz de la superficie de cocer. El Horno reforzado lo está bastante para impedir el alabeo. Todas las esquinas hechas de hierro angular, con lo que se logra gran resistencia, y un primoroso acabado. Registro regulador giratorio directo de construcción nueva. Cantos de acero pulido, guardaciones plateadas con doble baño de níquel, charoladas negras, &c.

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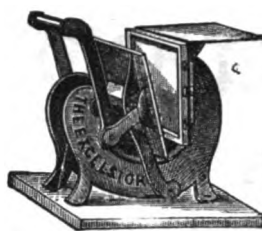
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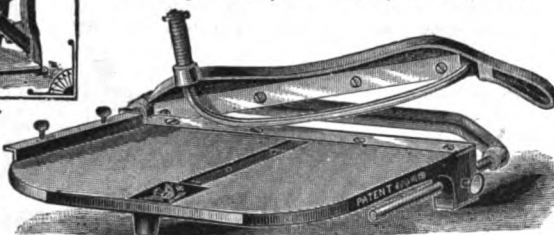
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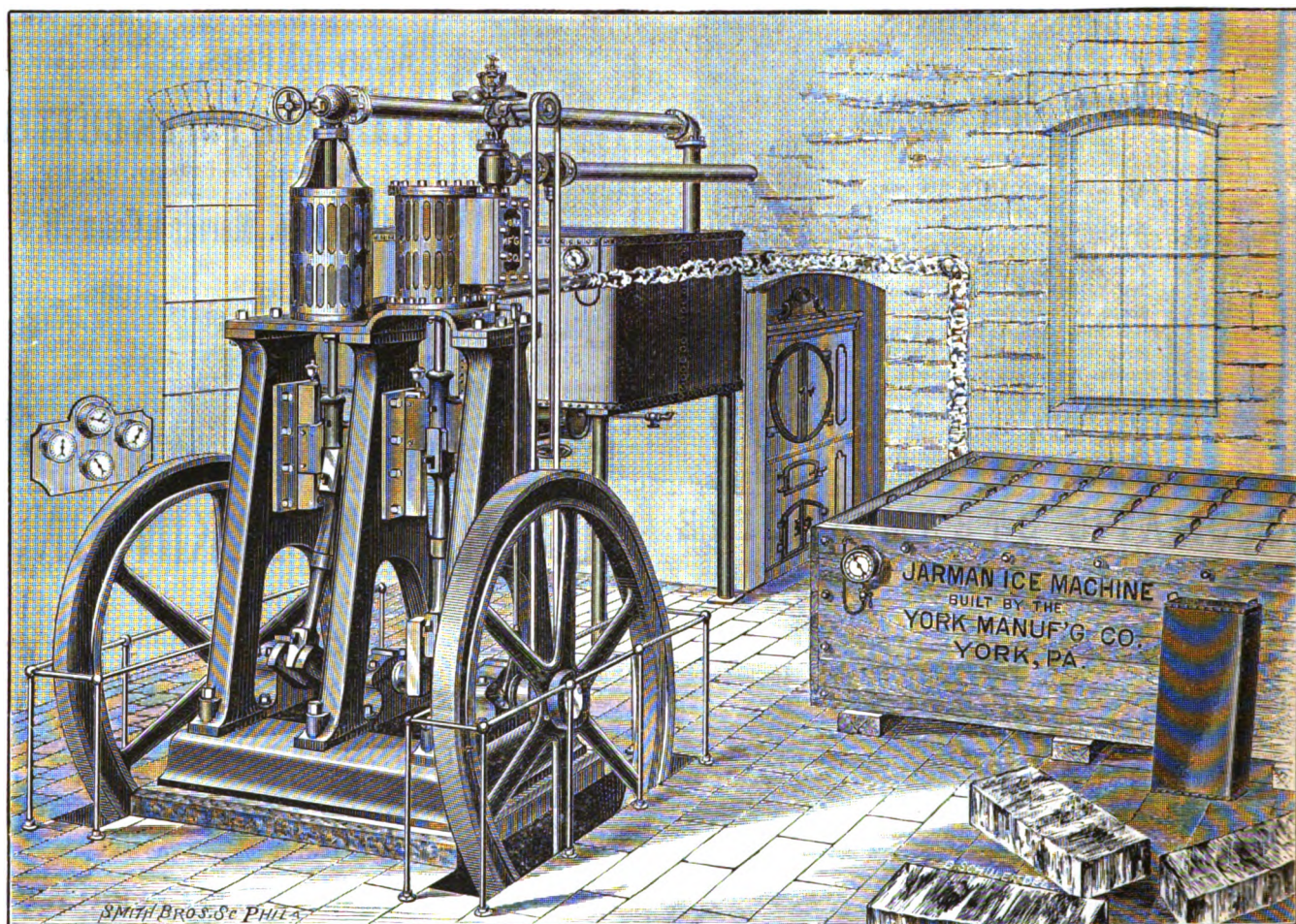
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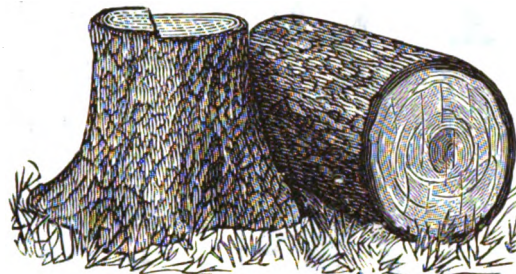
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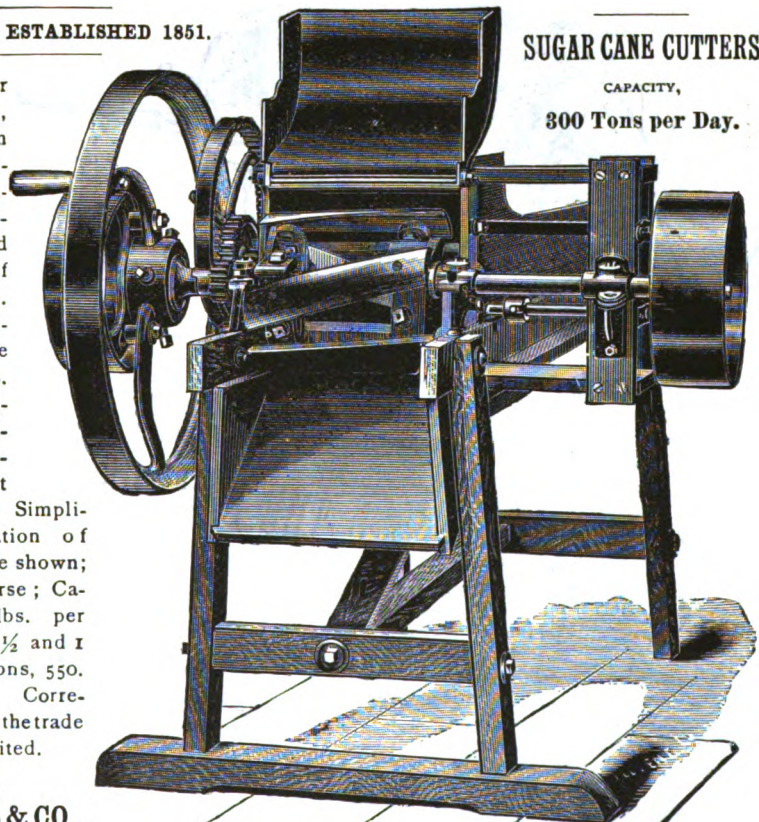
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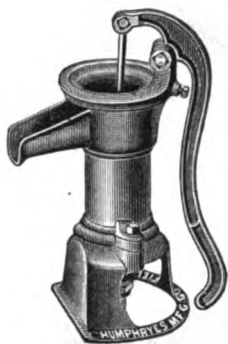
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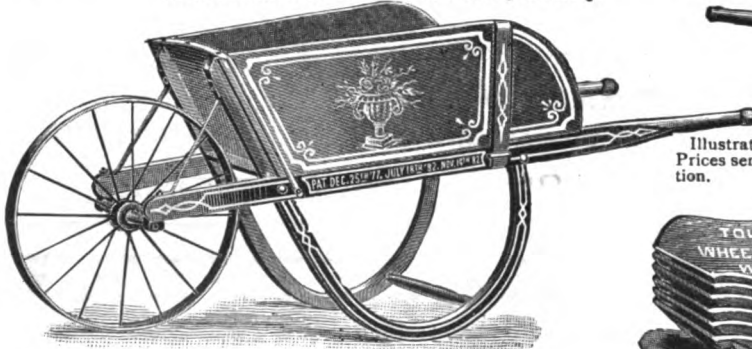
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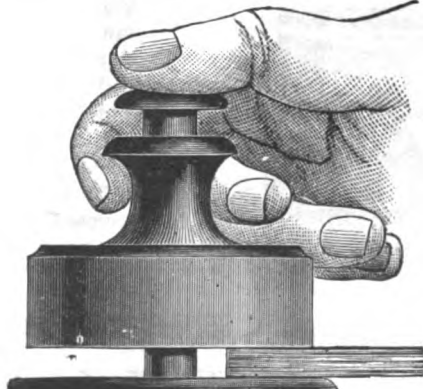
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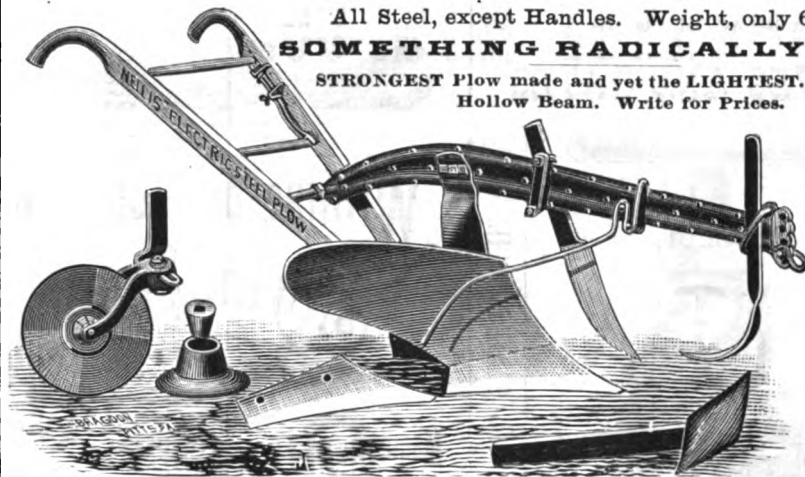
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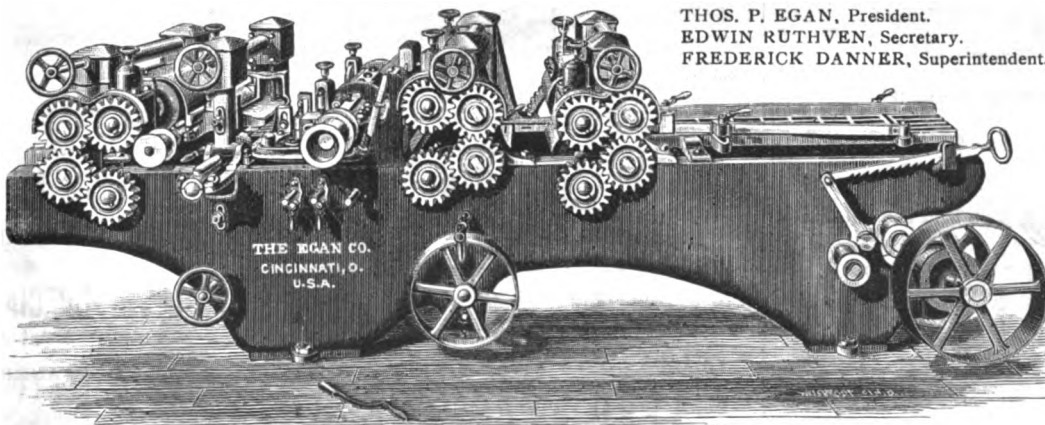
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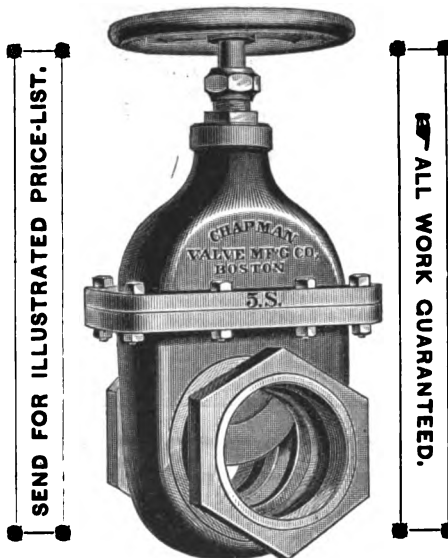
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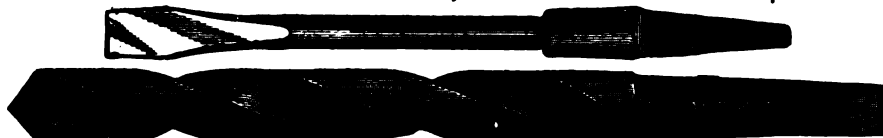
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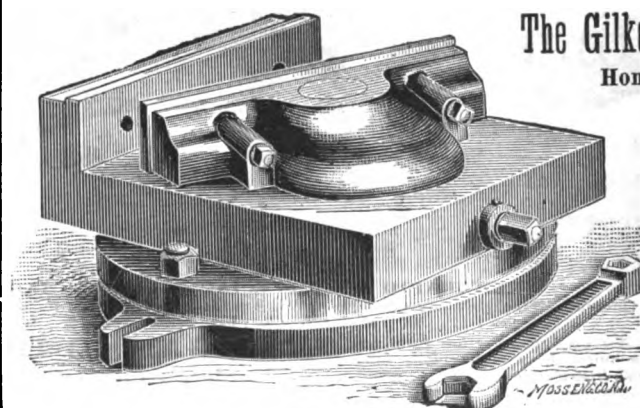
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and see which you had rather pay 10 cents for—the "big bottle" with 5 cents' worth of glue, or the honest bottle with

DOUBLE THE QUANTITY, AND BETTER QUALITY.

This cut shows the 10 cent size of **LE PAGE'S LIQUID GLUE** bottle,—outside and inside.

This is an exact reproduction of a 10 cent bottle of glue extensively advertised. **IT IS NOT LePAGE'S.**



THE TOTAL QUANTITY of LePAGE'S LIQUID GLUE sold during the past five years in all parts of the world amounted to over

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ALL KINDS of DEALERS find it a good thing to handle. It brings new customers, and makes them STICK.

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London, 1883; New Orleans, 1885. At the New Orleans Exposition joints made with it endured a testing strain of over

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Pronounced the Strongest Glue Known.

IT MENDS EVERYTHING,

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ESTABLISHED 1845.

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Manufacturer and Exporter of High and Low Roll Cylinder and Flat Top

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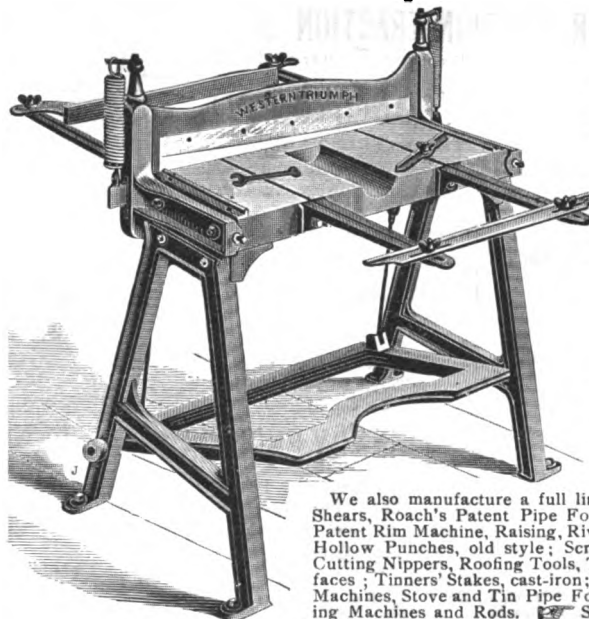
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"WESTERN TRIUMPH."



OUR Shears are arranged with adjustable gibbs, to take up all the wear in the gate; by this they can always be made to work as accurate and perfect as when new. These Shears are arranged with gauges for squaring, stripping and cutting at any desired angle without the necessity of marking the sheets. Our shears also have two springs, one on each end of the gate, which gives the shear a more free and accurate movement. The brackets on front of shear are made so as to take in sheets 30 inches between gauge and blades.

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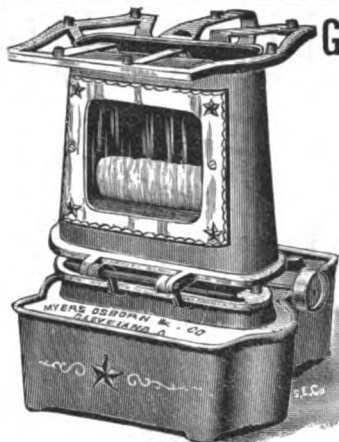
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The most complete line in the world, made in every variety known to the trade. Absolutely reliable. Twelve years before the public. Full line of furniture for every style and variety of stove.

Our Lamp-Stove is of the most attractive design and finish. Full size. Furnished with convenient handle. Removable mica washer. These lamps find ready sale, are useful in the nursery, boarding-house, camp and indispensable for chemists, carpenters, &c.



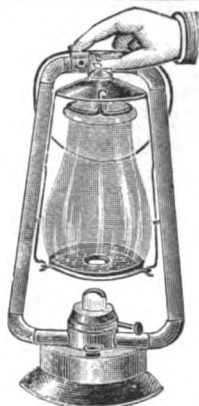
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Genuine Safety
Tubular Lantern.
(Globe raised for
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Tubular and Railroad Lanterns,

LOCOMOTIVE HEAD-LIGHTS, STEAM GAUGES,

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THE GENUINE SAFETY TUBULAR LANTERN GIVES A CLEAR, strong light, without smoking, and will not blow out. Can be lighted, extinguished, trimmed, filled and regulated without removing the globe.

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FREEMONT ENGINE WORKS,

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"CHAMPION" AGRICULTURAL ENGINE,

OUR PATENT "SPARK ARRESTER" MAKING THESE ENGINES ABSOLUTELY FIREPROOF.

Tested during the past eleven years, and now endorsed by all leading Insurance Companies.

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Awarded First Premiums wherever exhibited.

ROAD LOCOMOTIVE,

WITH WATER TANK,

For hauling loads on the roads and Steam
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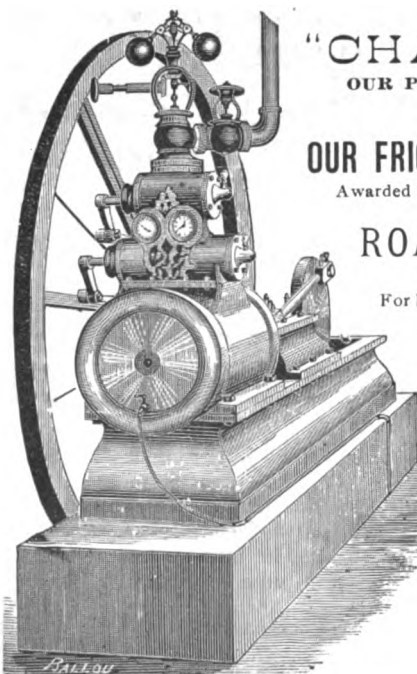
Stationary Engines

(PORTABLE TYPE),

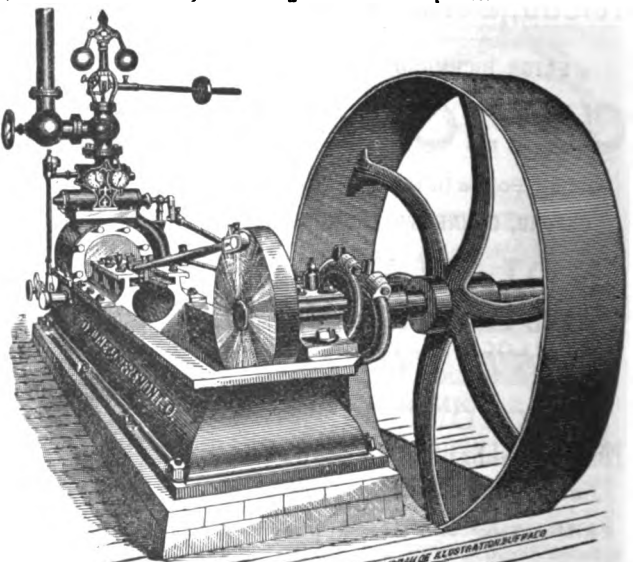
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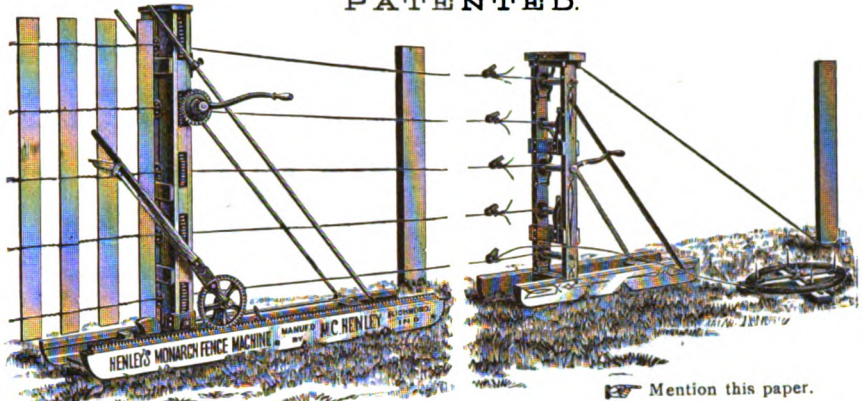
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Manufacturers of HIGH GRADE
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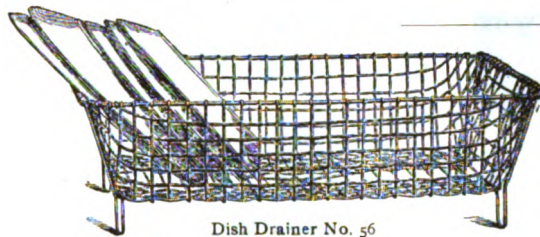


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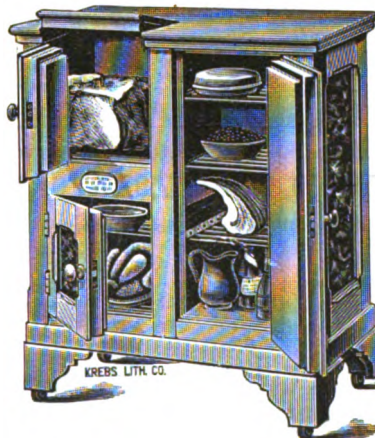
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Illustrated Catalogue.



Caster No. 15.

ESTABLISHED 1856.



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ICE CHESTS AND

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Superior to all others in Simplicity, Efficiency,
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☞ The only Refrigerator in which **GROUND CORK**,
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Novelty Works,**

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BASKETS,

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HAT-RACKS, &c.**

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We make 13 Sizes, heavy tin, best finish, all secured
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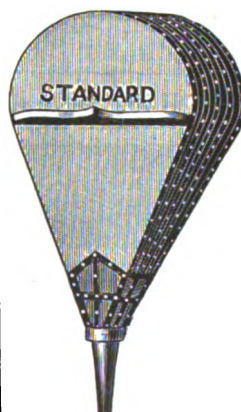
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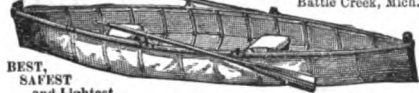
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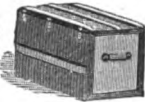
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And shuts the door by his own weight,
And then he jumps right through a hole,
And thinks he's out; but bless his soul,
He's in a cage, some how or other,
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Rodas em bruto, furadas, ou ajustadas a eixos.

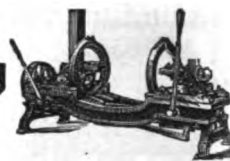
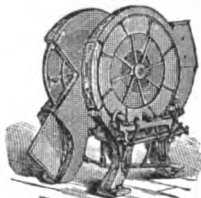


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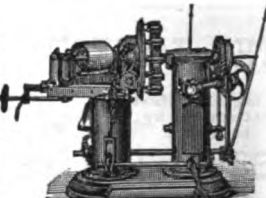
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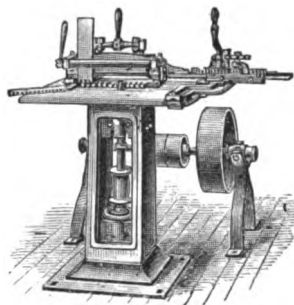
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Chamfering, Howeling and Crozing
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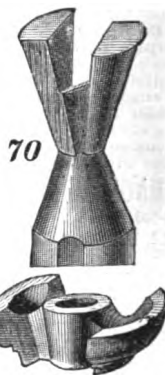
This machine dovetails with equal
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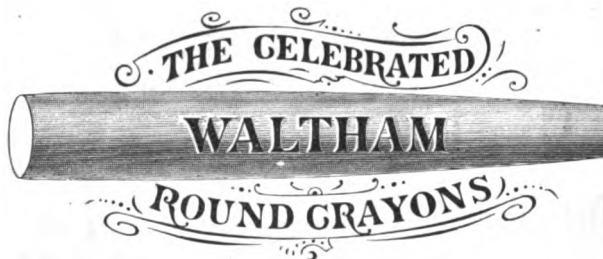
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Our NEW WHITE DUSTLESS ENAMELED CRAYON,
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Enameled without extra charge.
Samples Free to the Trade.
Prices as low as the lowest.
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SELLS rapidly against all competition, and always gives satisfaction. Every
Roller has brass ferrule on each end, and is complete and ready for hang-
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Improvements fully covered by Patents.

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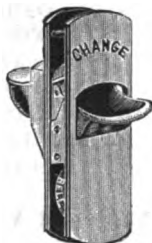
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Our Improved Fare Box No. 3.

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We claim the following essential points of superiority in this box over others:

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All of the glass plates can be easily removed for cleaning in less than one minute.

The Fares are shown in two different positions. It is much lighter in weight and occupies less room in car than any other box. We have just added to this box a new and very valuable improvement, viz., a small mirror placed back of the first slide or rest, which presents to the driver's view the back side of the fare as well as the front, when resting on first rest. He can by this quickly detect any spurious or mutilated coin or ticket that may be split and put in box.

One or more coin are liable to get behind a ticket, and the driver cannot see them, and quite often a passenger is "run up" when his fare is concealed behind the ticket from the driver. This arrangement gives driver view of both sides of fares.

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INDISPENSABLE TO EVERYONE OWNING A CARRIAGE.**Cook's Patent Carriage Wrench.**

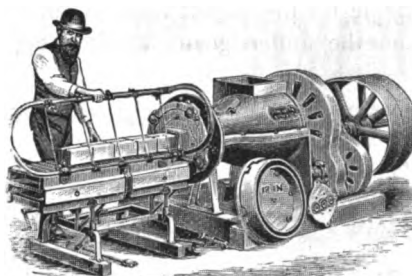
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Bushnell Patent-Made Norway Iron Staples,
Especially adapted to Agricultural Implement and Wagon Makers
NEW HAVEN (CONN., U. S. A.) STAPLE WORKS.

**FREY'S New Tile and Brick Machine,**

THE VERY LATEST AND BEST.

Makes Brick, Tile, Flooring Blocks, &c.

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Clay Crushers, Engines, Boilers and whole Outfits made by the Manufacturers,

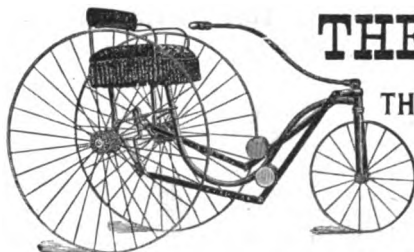
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— MANUFACTURED BY —

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EASY, GRACEFUL, ELEGANT. NO DEAD CENTRES.

FEWEST FRICTION BEARINGS POSSIBLE. NO Chains or Gearing. Immense power with little exertion. The action of the rider in motion is most healthful and invigorating. Rubber or Steel Tire. Children's sizes, with 24, 28 or 32 inch rear wheels; Adults', with 36 and 42 inch. Write for prices and particulars.

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GUARANTEED TO CHOP NOT GRIND THE MEAT.

EASILY CHOPS AS SHOWN.

CLEANED

NO STRINGS OR SINEWS CAN PASS THROUGH UNCUT.

No. 10, 1711
FAMILY SIZE.
Price, \$3.00.

FOR CHOPPING
Sausage-Meat, Mince-Meat, Hash, Hamburg Steak for
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Tripe, Clams, Chicken-Salad, Codfish, Scrap-
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VALUABLE COOK-BOOK, FREE, WITH EVERY CHOPPER.

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No. 10	chops 1 lb. per minute,	\$3.00.
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HOWES & EWELL,	Flour Mill Machinery.
POWELL TOOL CO.,	Axes, Hatchets and Carpenters' Tools.
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AND MANY OTHERS.

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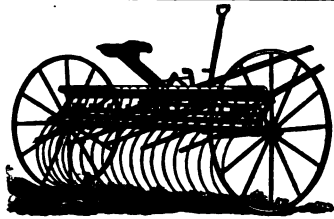
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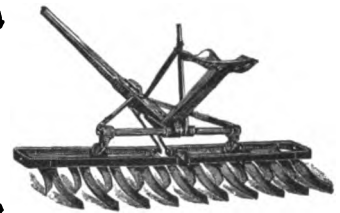
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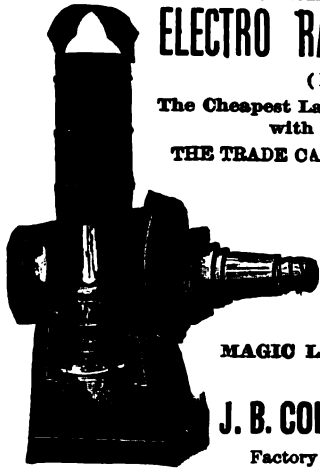
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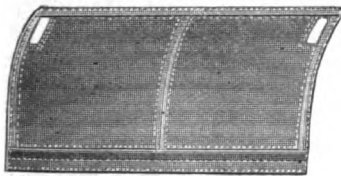
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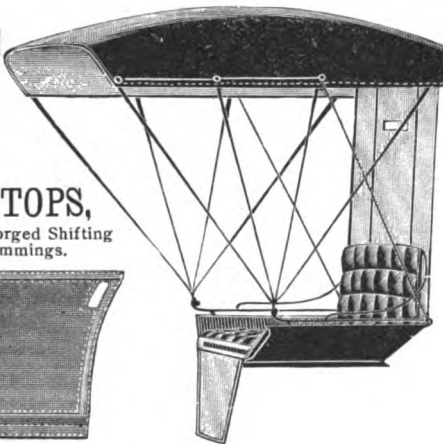
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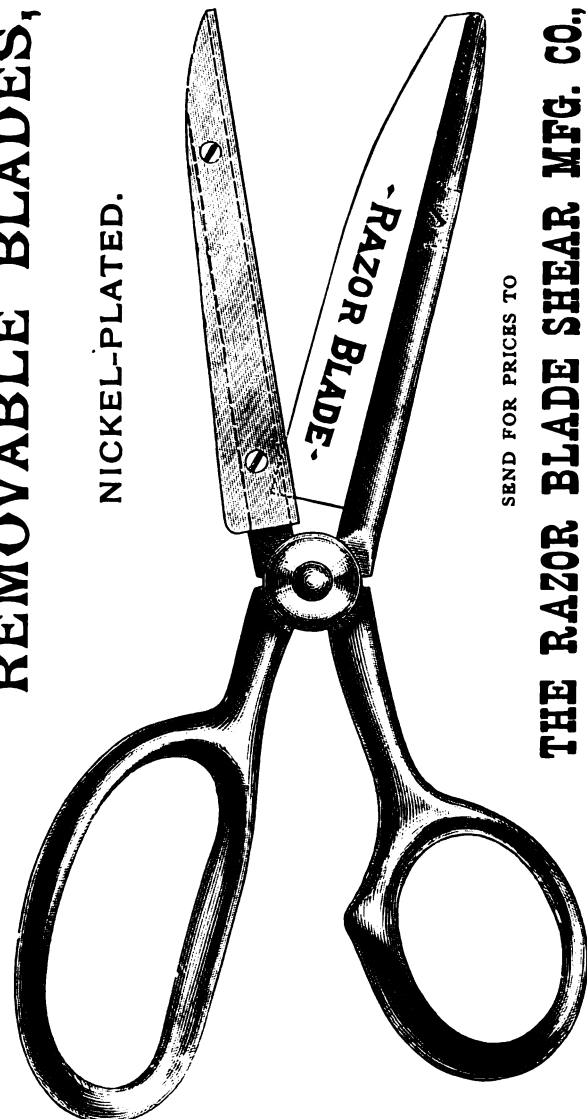
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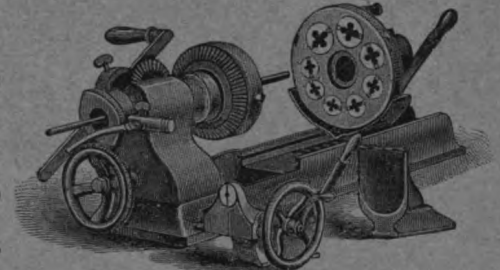
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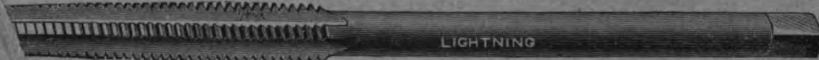
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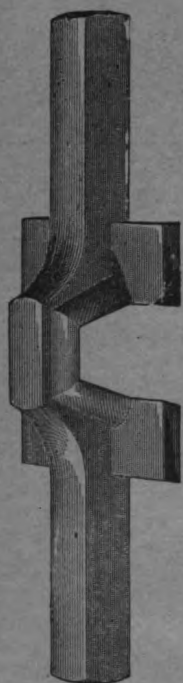
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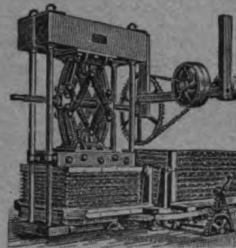
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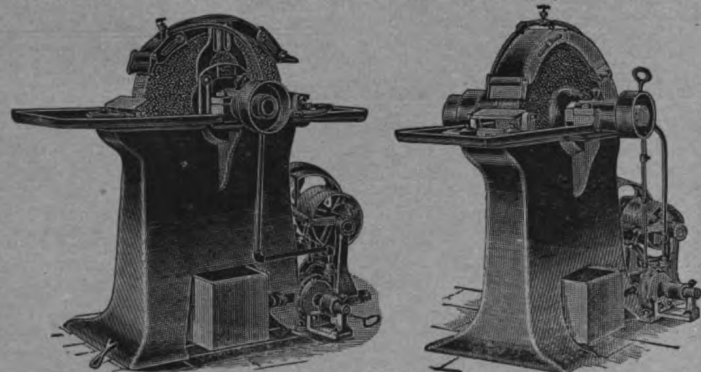
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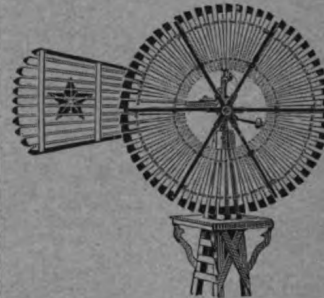
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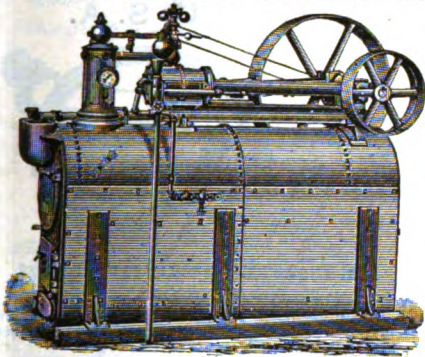
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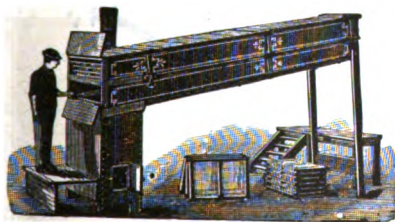
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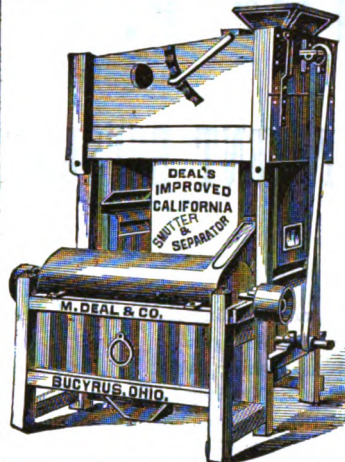
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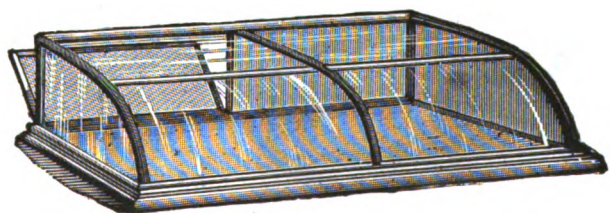
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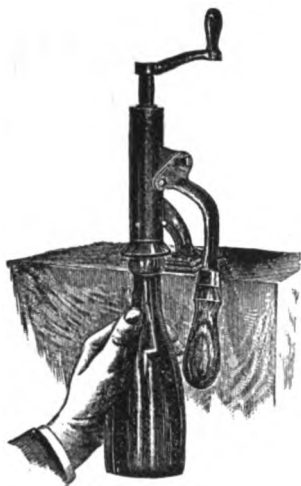


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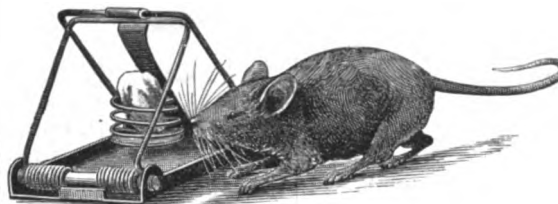
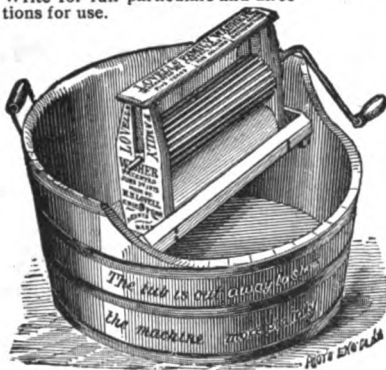
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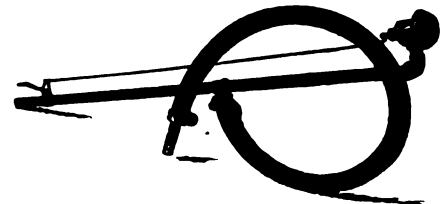
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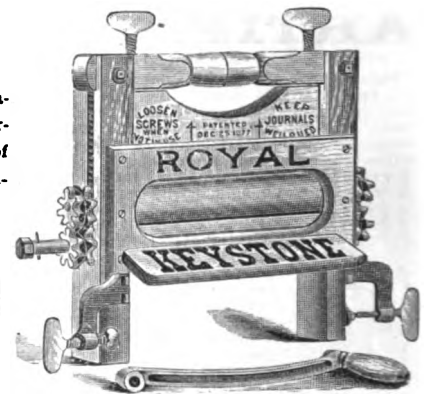


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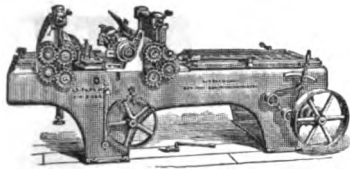
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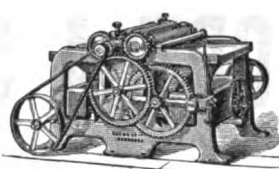
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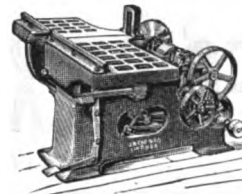
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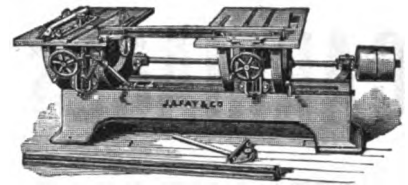
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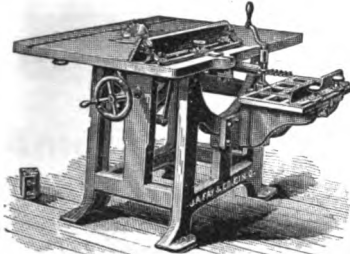
Wood-Working Machinery,

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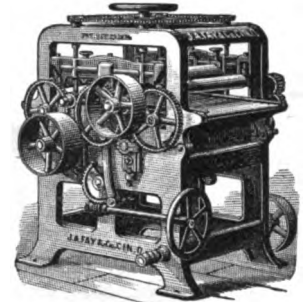
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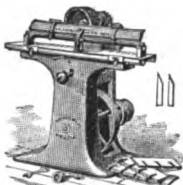
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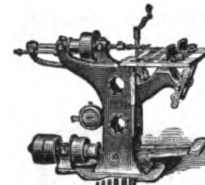
D. L. LYON, Sec'y.



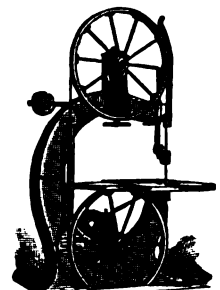
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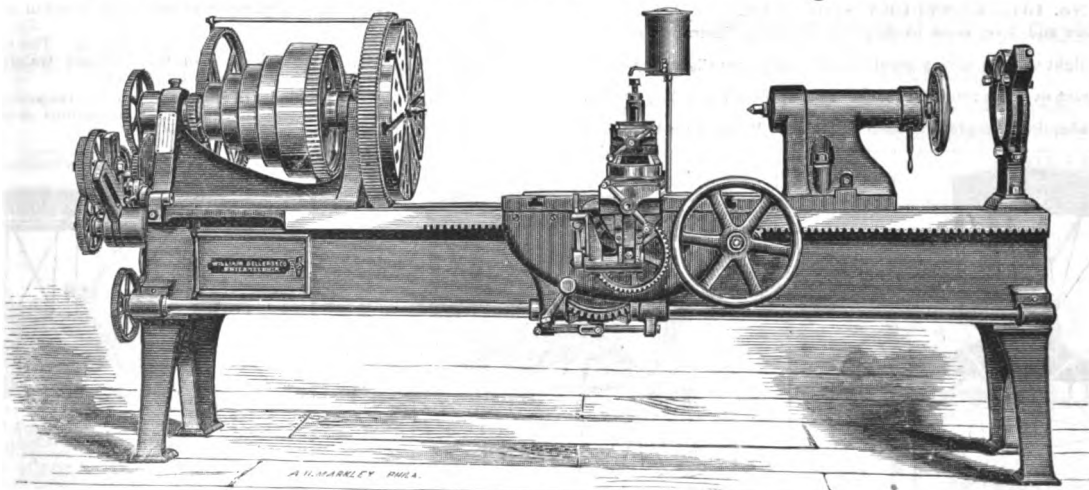


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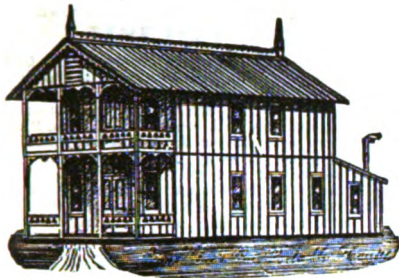
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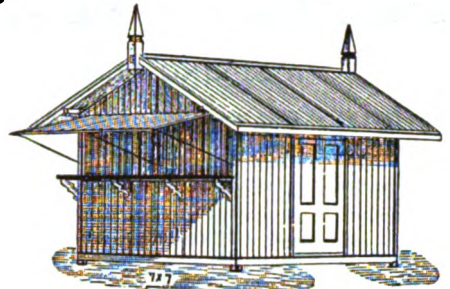
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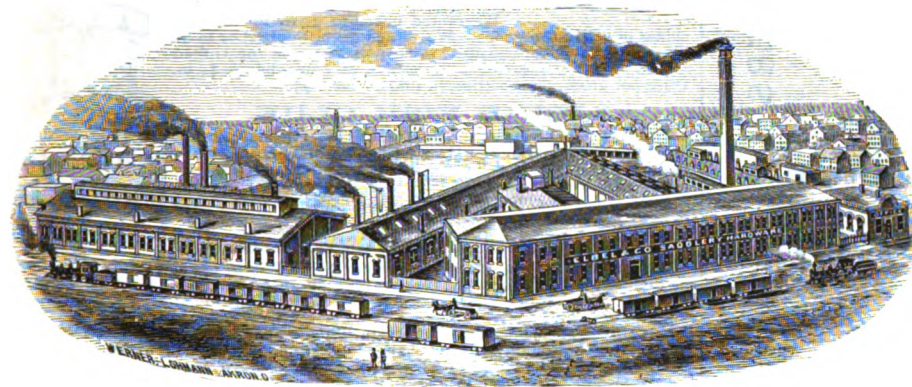
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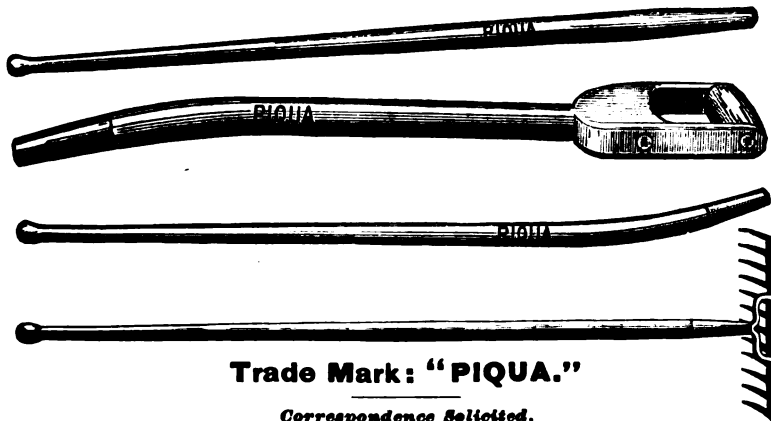
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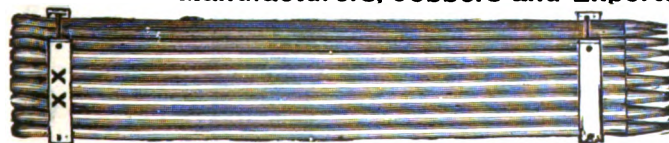
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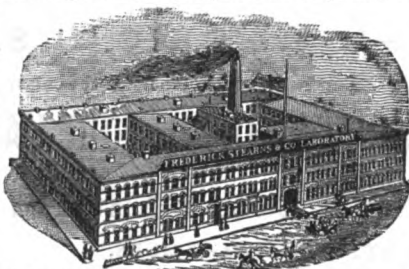
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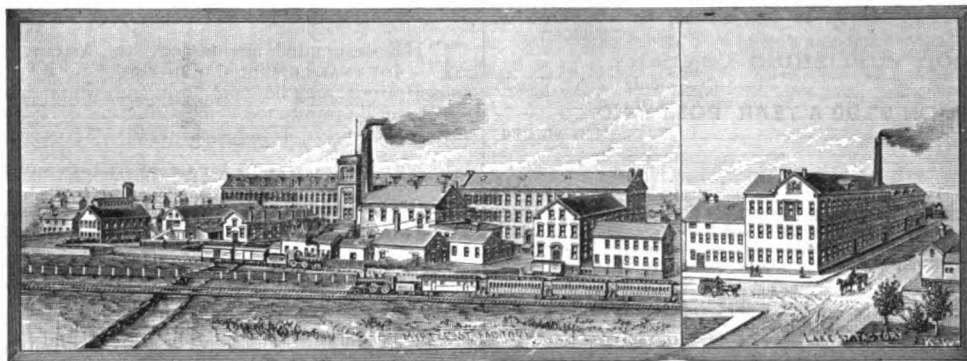
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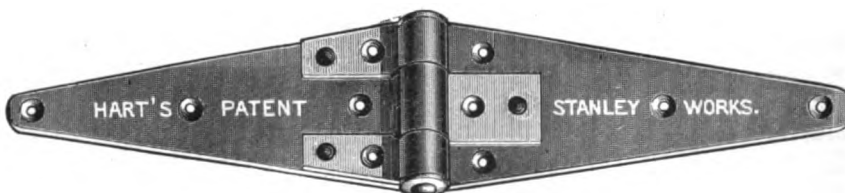
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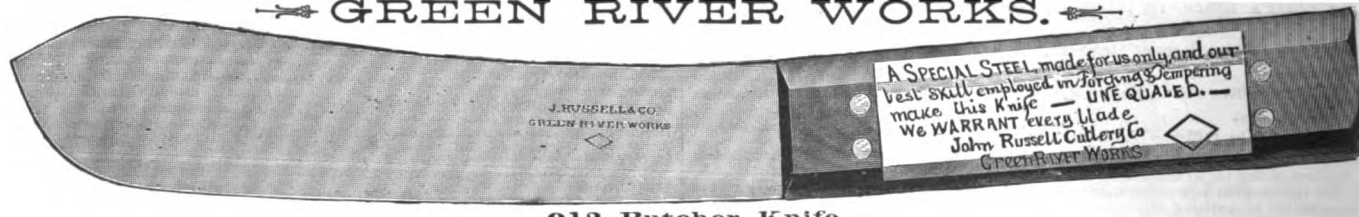
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Die Ueberschriften dieses classificirten Registers sind in fünf Sprachen nämlich auf Englisch, Französisch, Deutsch, Spanisch und Portugiesisch, und bilden so ein vollständiges GLOSSARIUM. Leser welche kein Englisch verstehen in Stand setzend, sofort irgend eine Klasse Anzeigen zu finden, welche sie interessiren möge.

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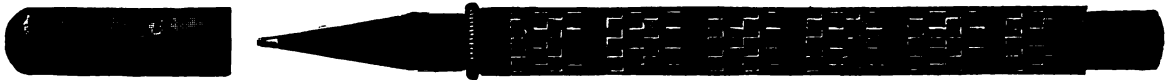
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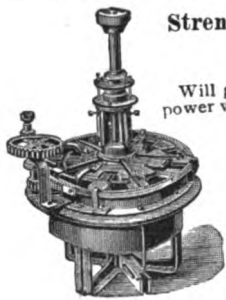
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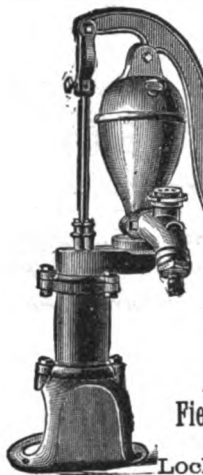
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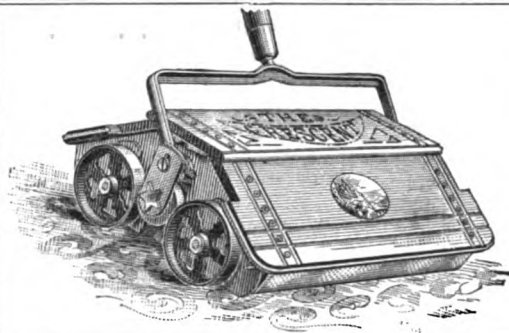


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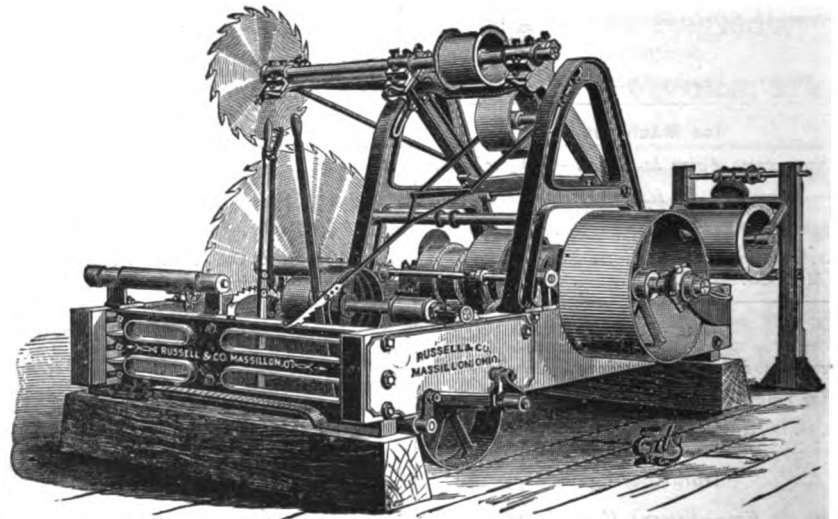
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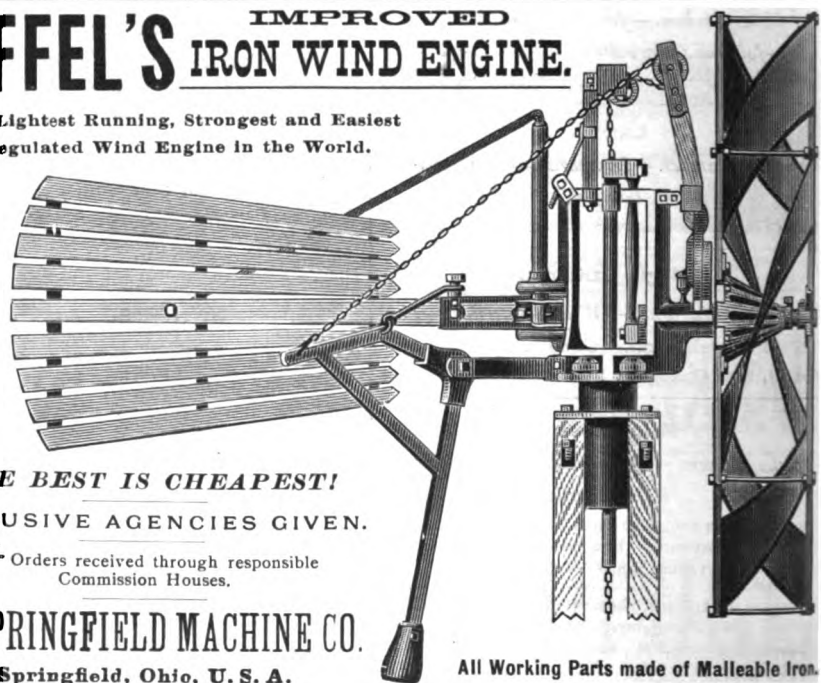
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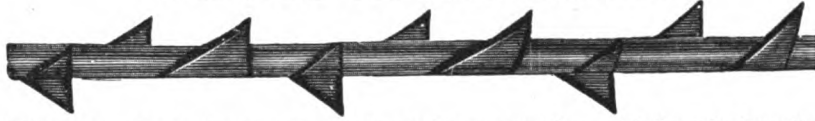
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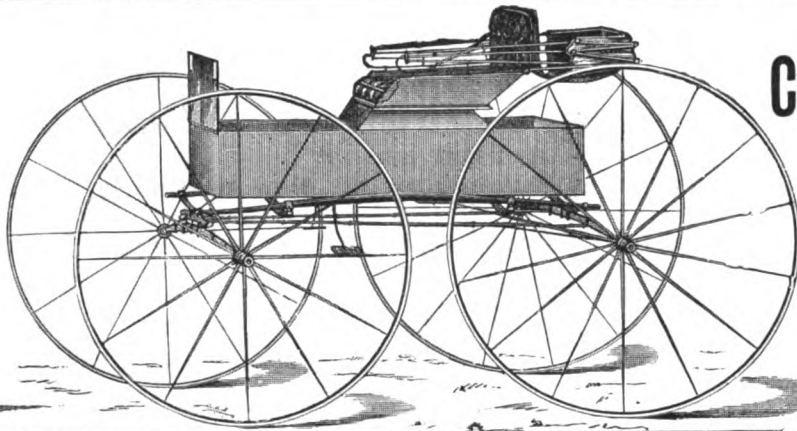
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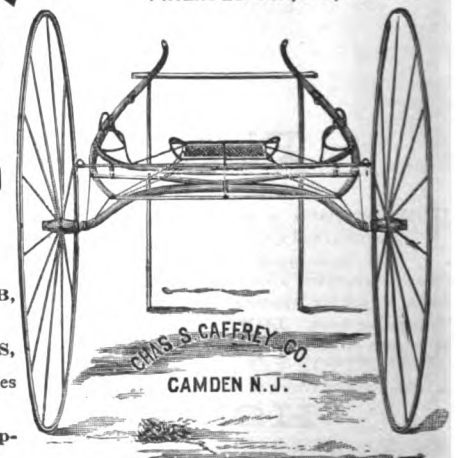
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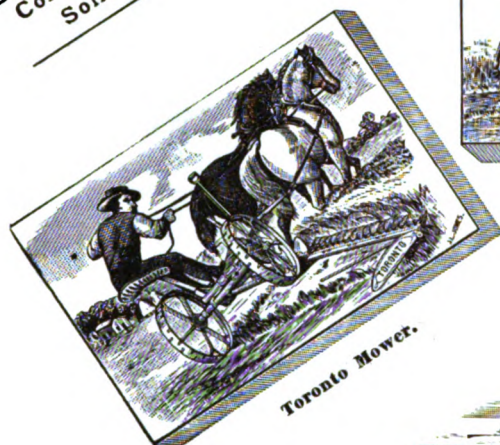
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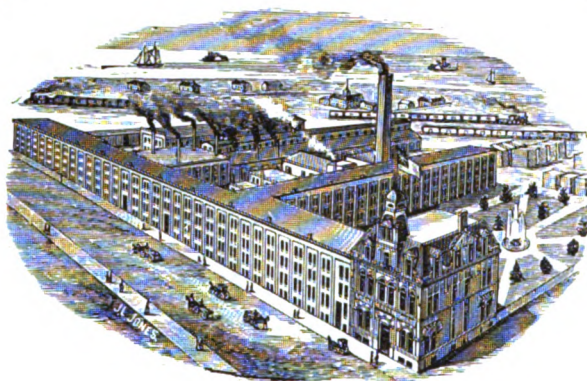


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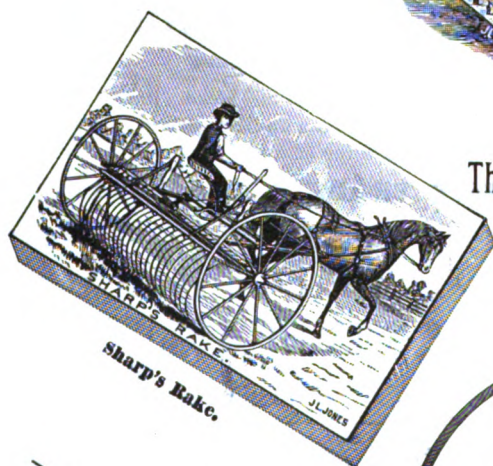
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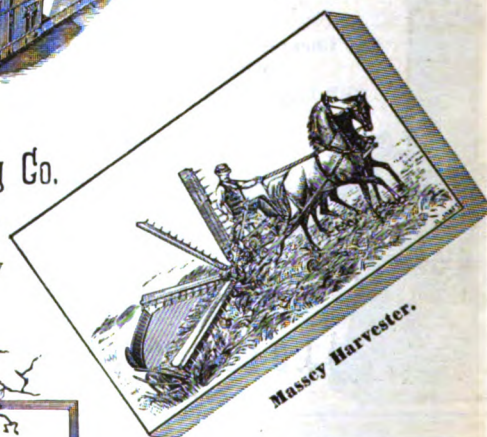
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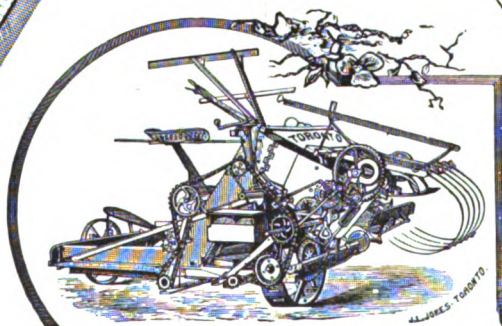
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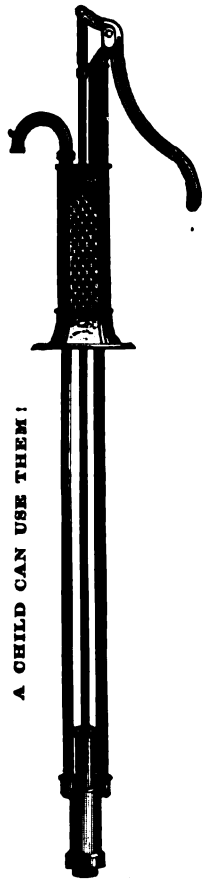
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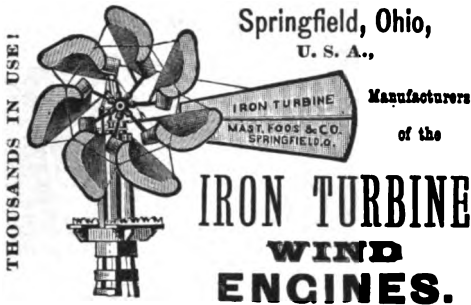
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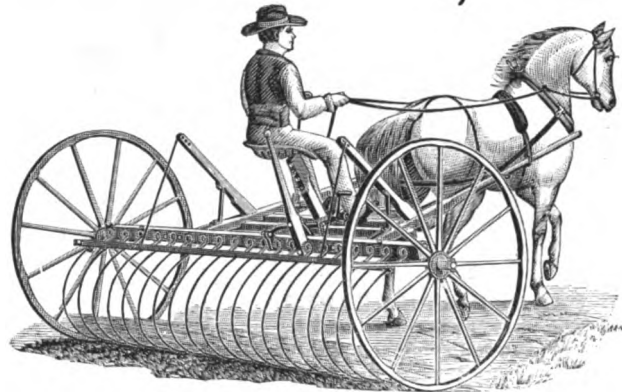
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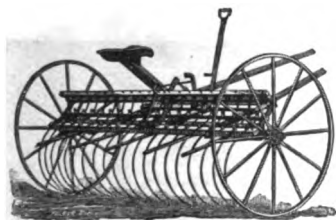
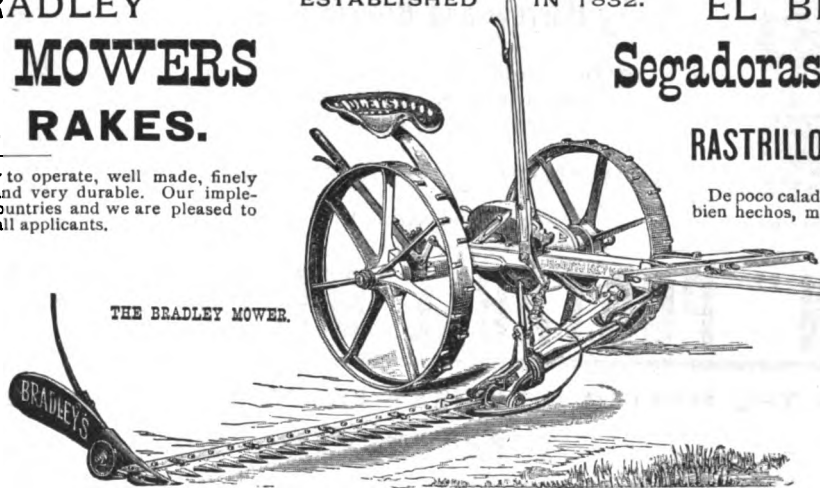
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AND NOT
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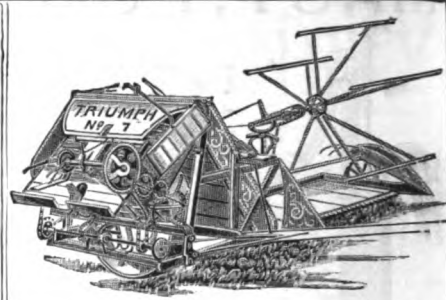
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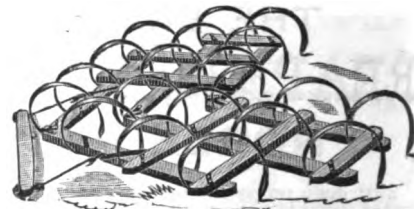
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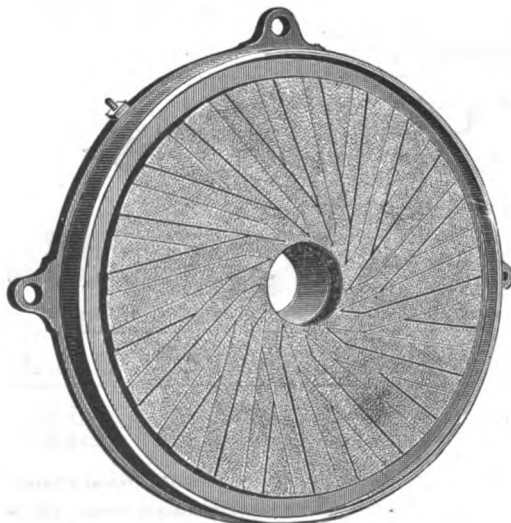
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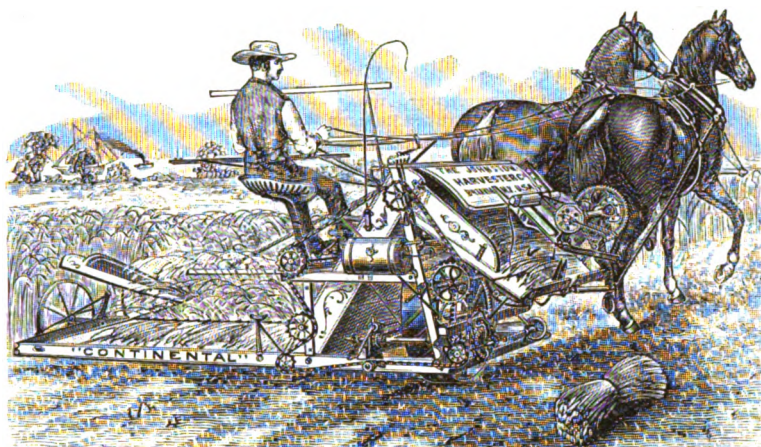
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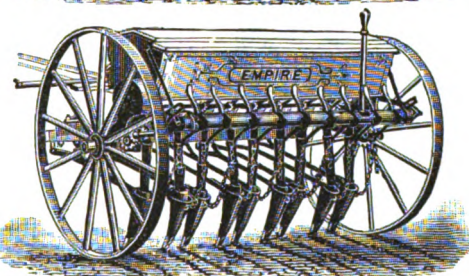
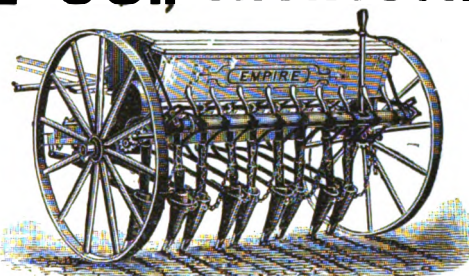
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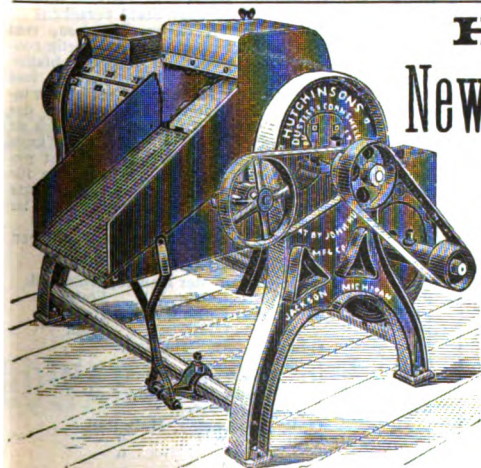
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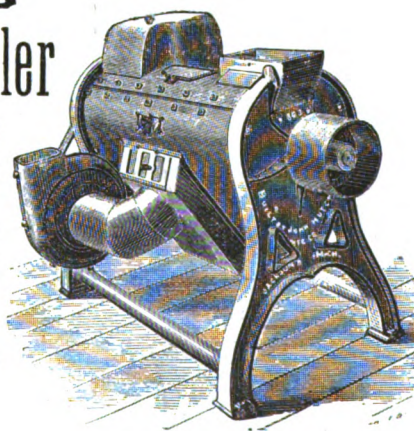
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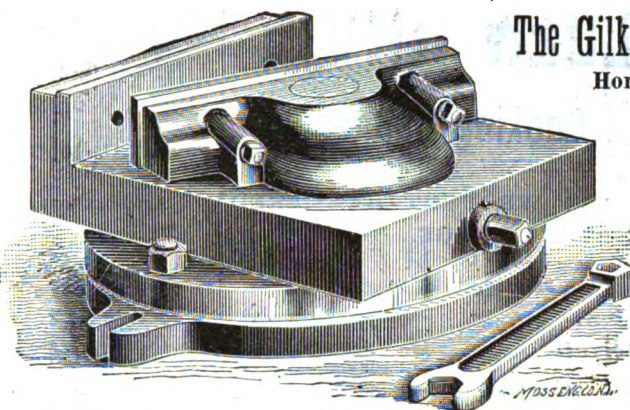
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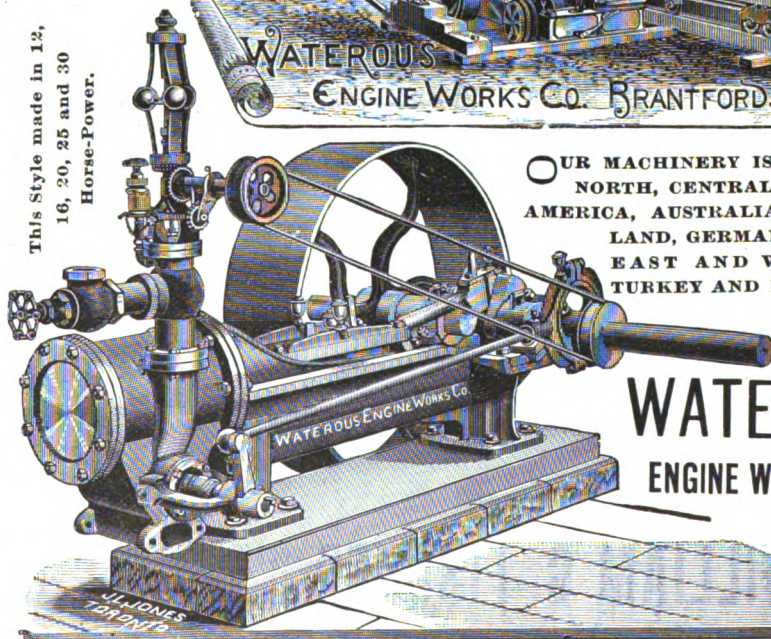
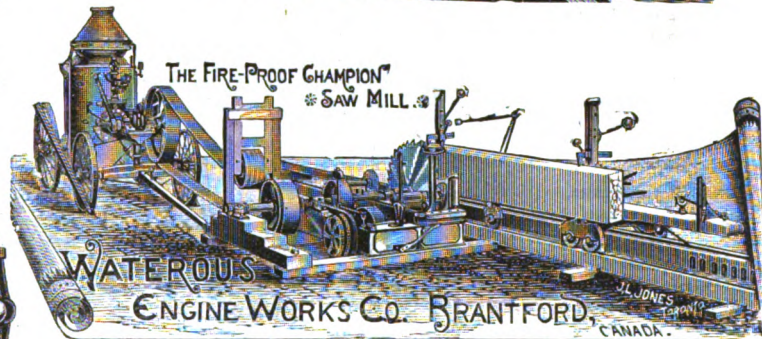
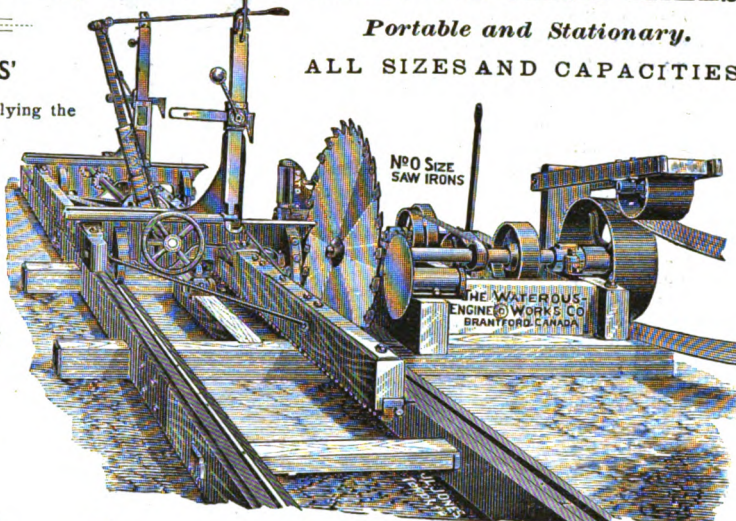
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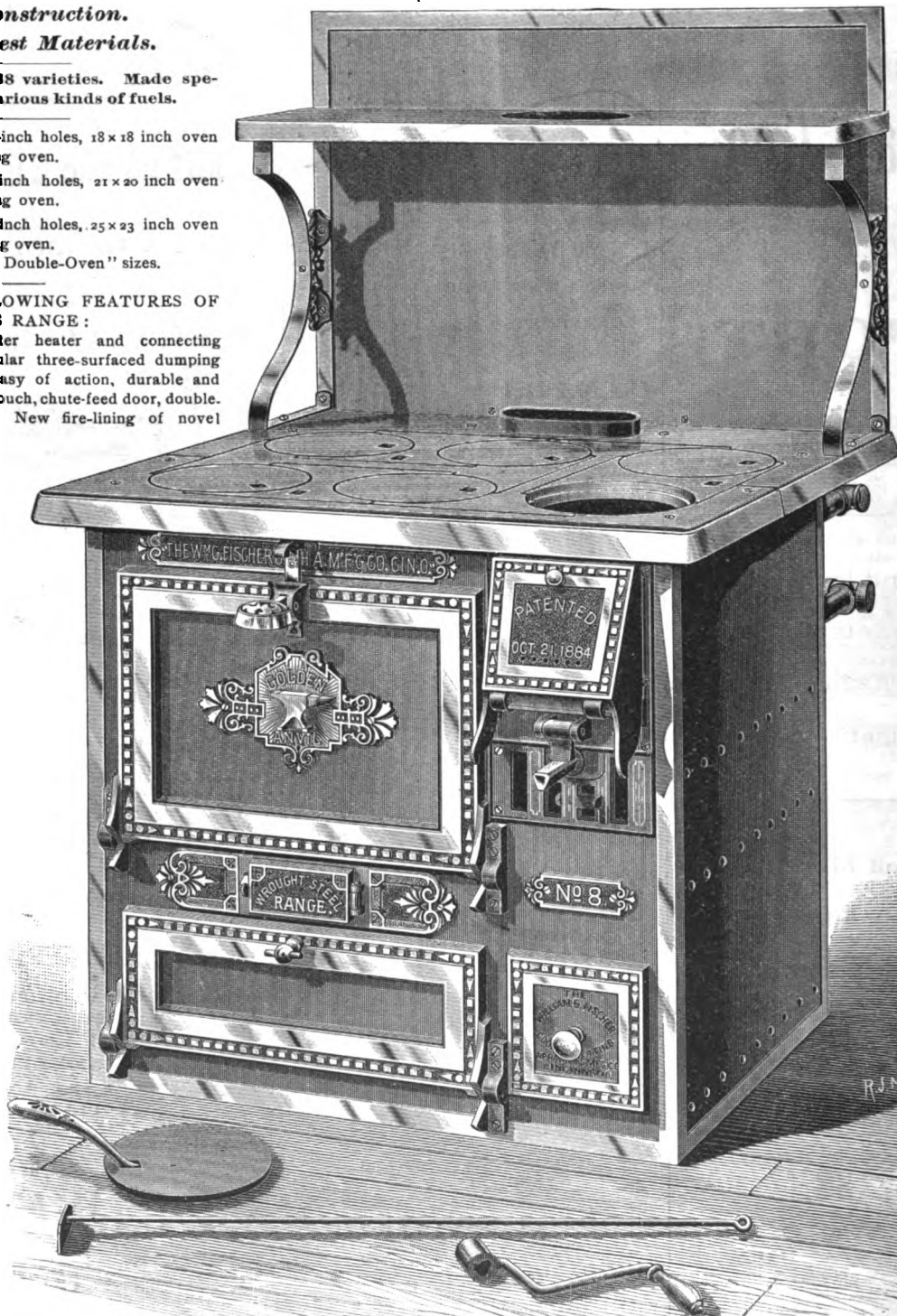
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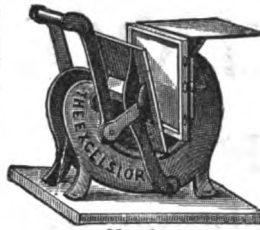
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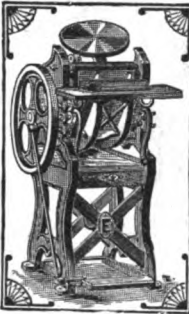
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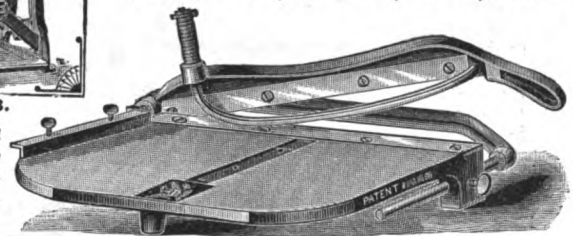
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A. H. VAN CLEVE."

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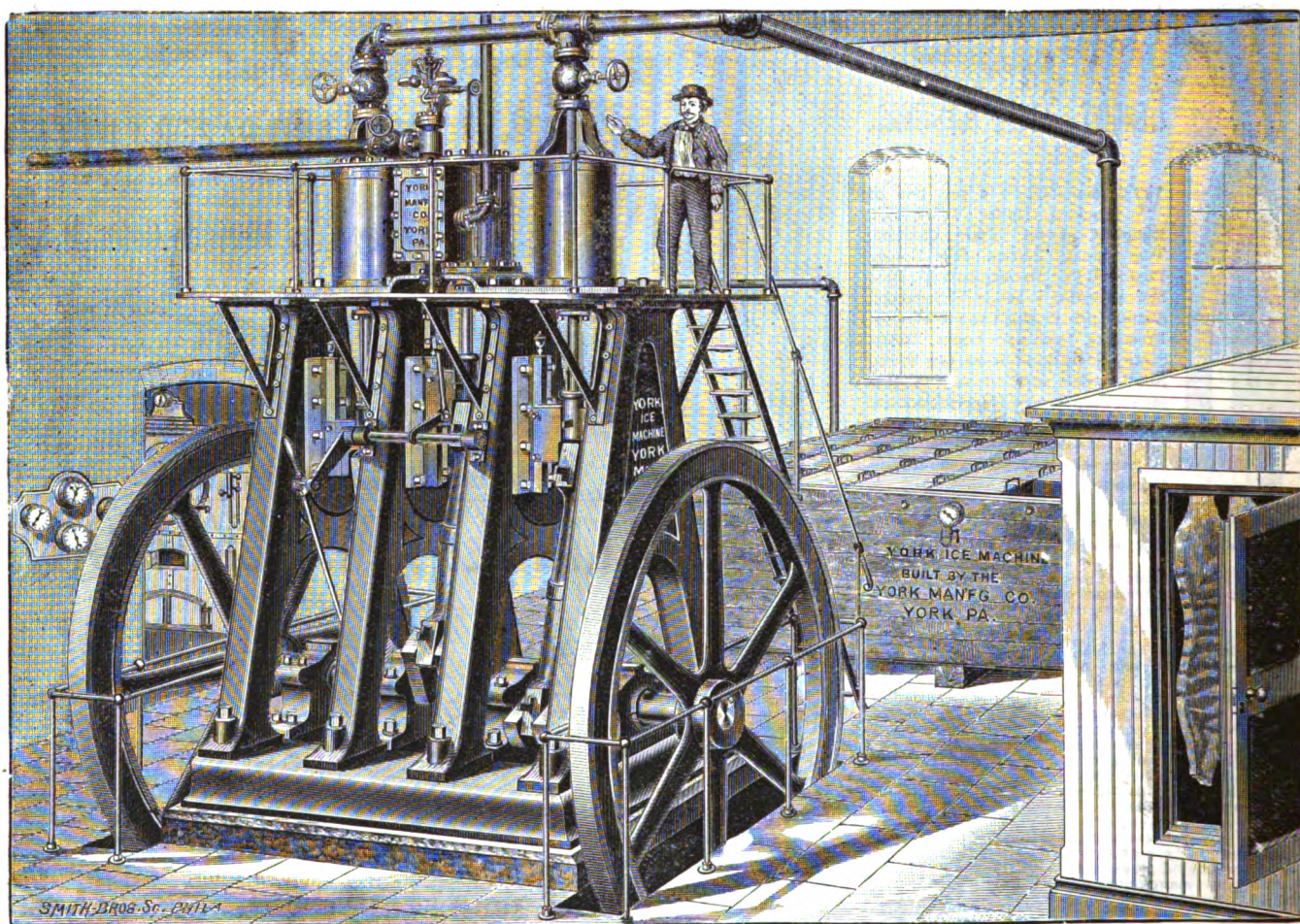
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Operando debaixo de instruções especiaes dos manufatureiros Americanos, o abaixo assignado se acha em posição de fazer os arranjos mais favoraveis com as firmas de credito firmado que queirão tomar a si a agencia de certas especialidades para procurar vendas.

Em nos escrevendo sobre este assumpto queiram dar plena informação a respeito da qualidade de generos desejados e sobre as facilidades para as vendas dando outrossim referencias quanto ao estado financeiro.

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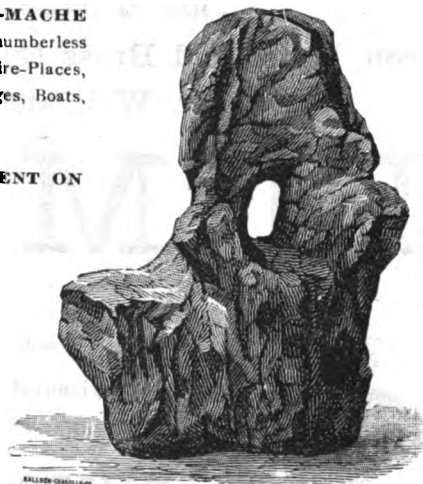
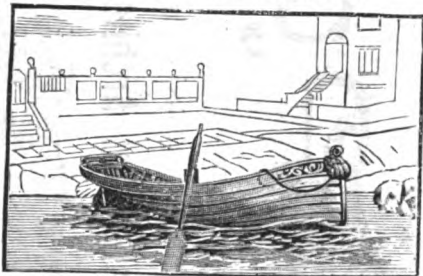
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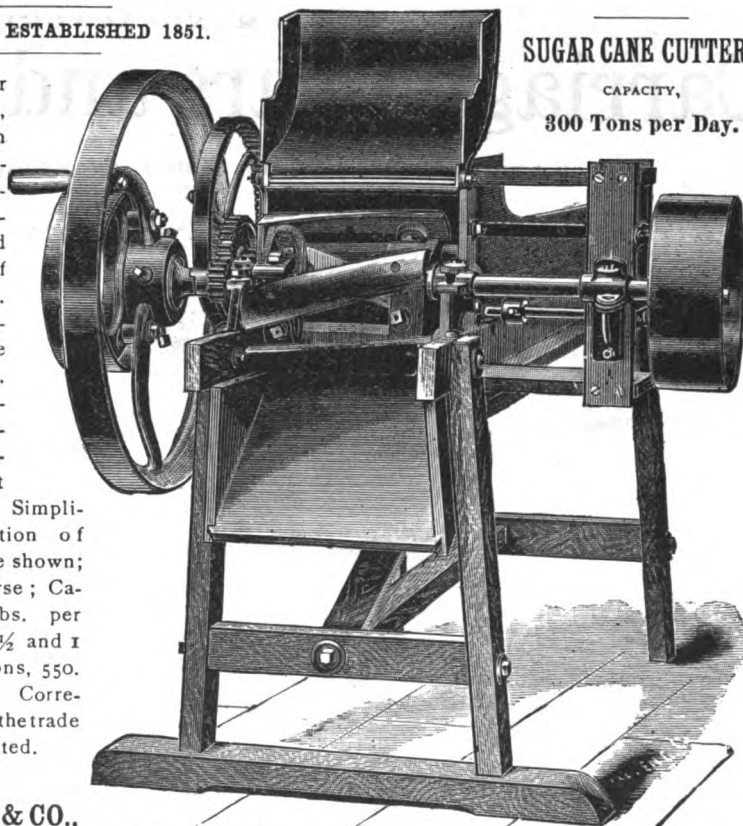
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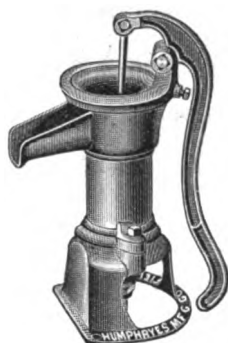
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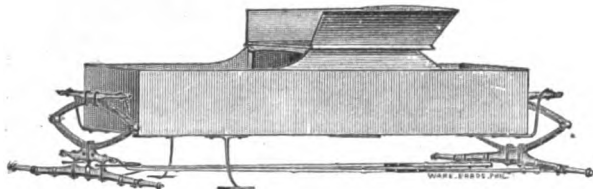
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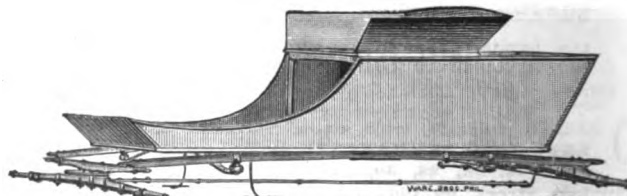
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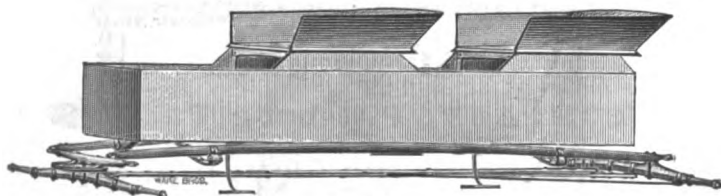
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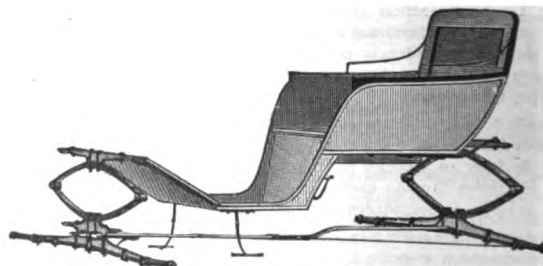
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No. 36.



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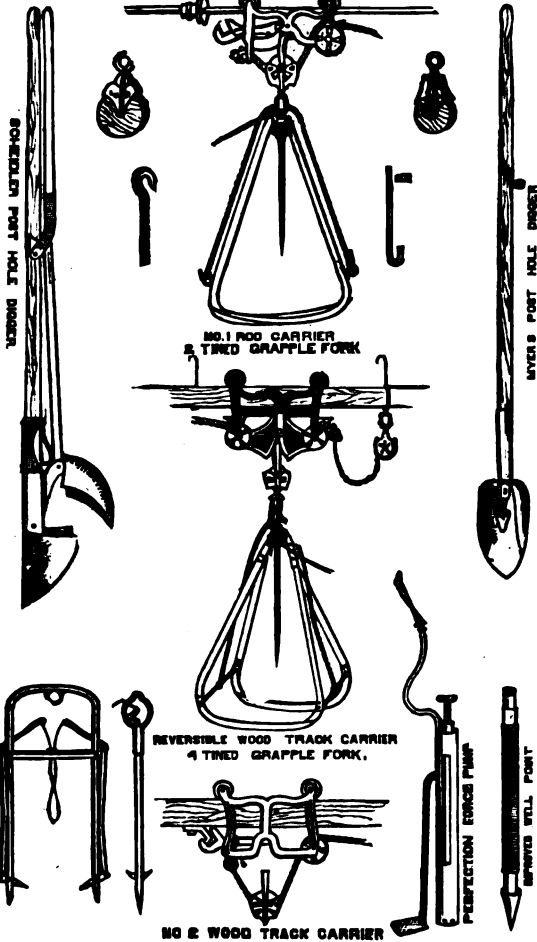
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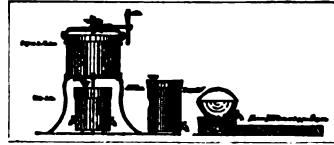
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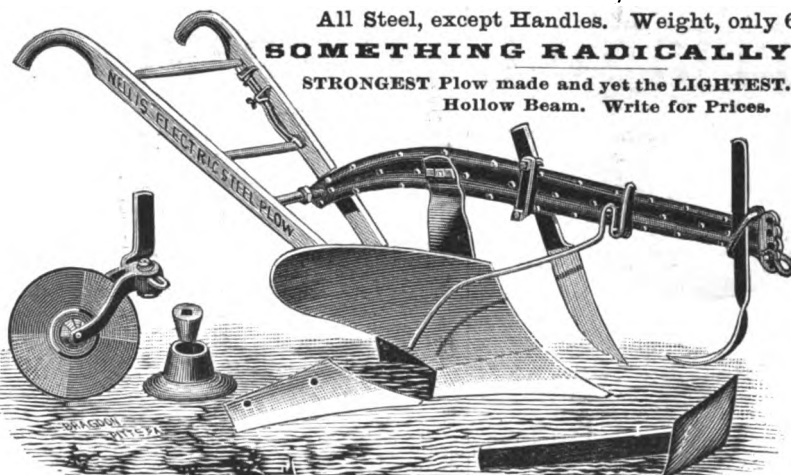
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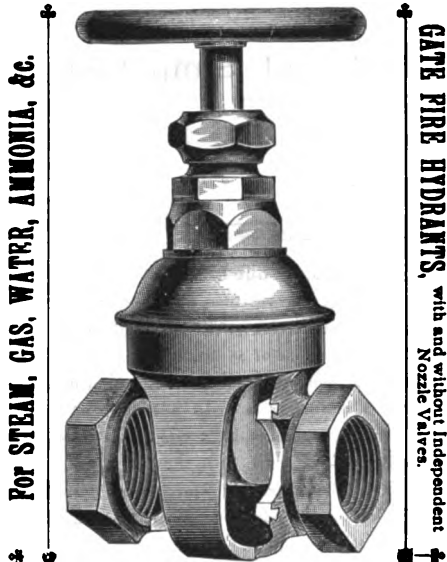
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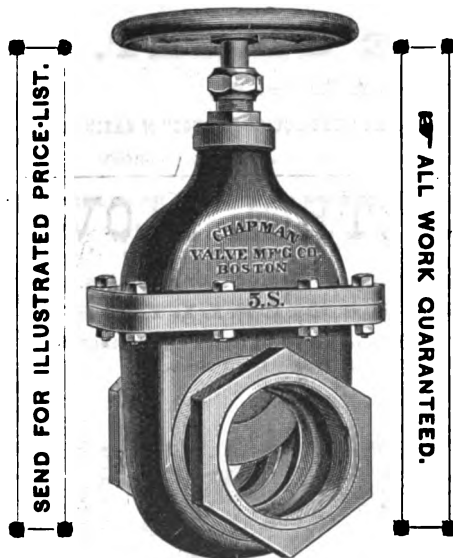
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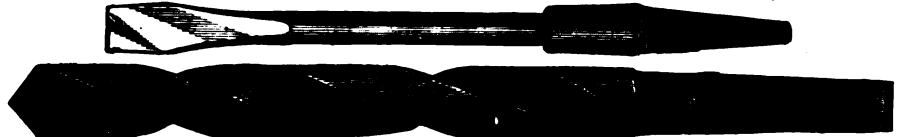
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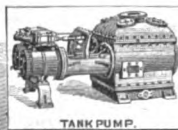
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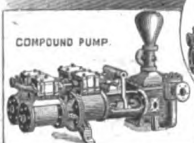
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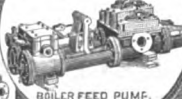
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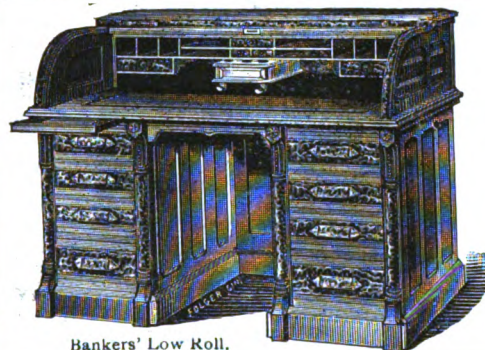
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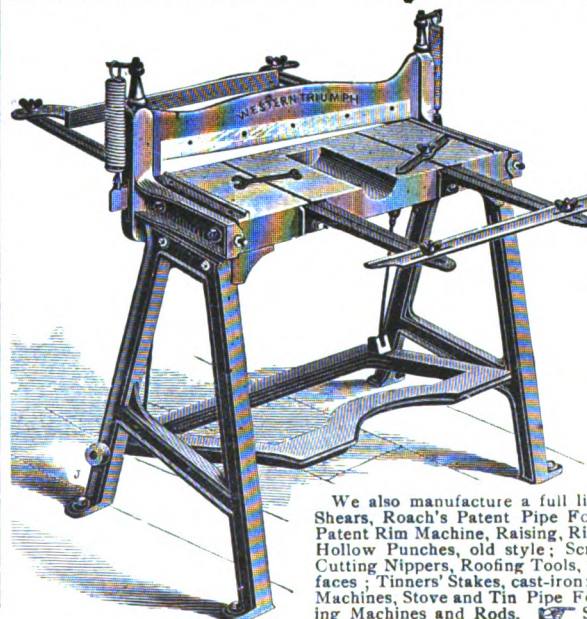
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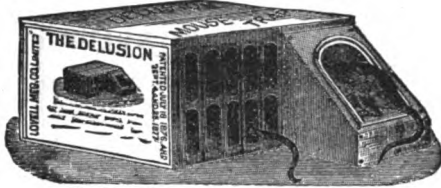
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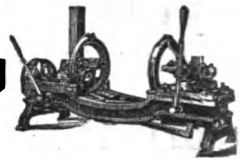


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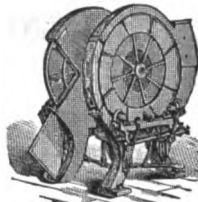
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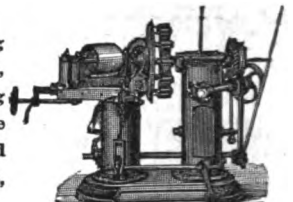
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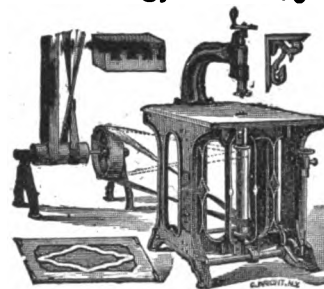
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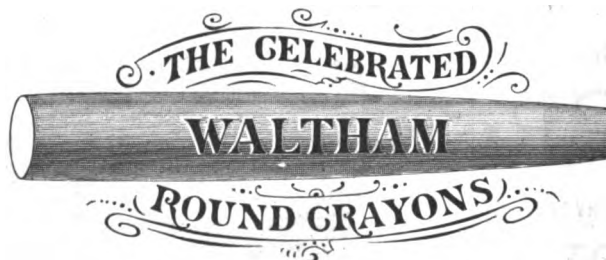
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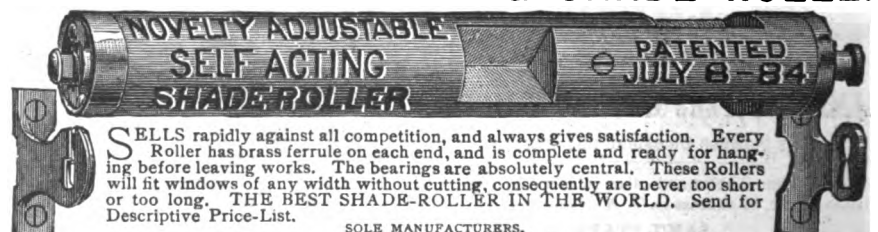
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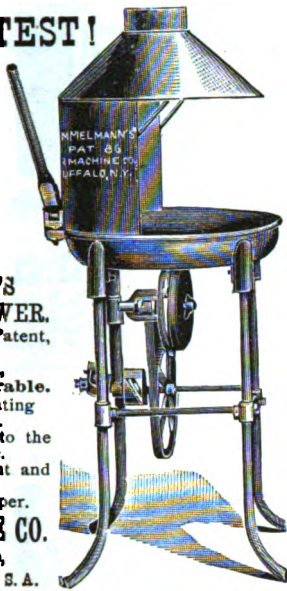
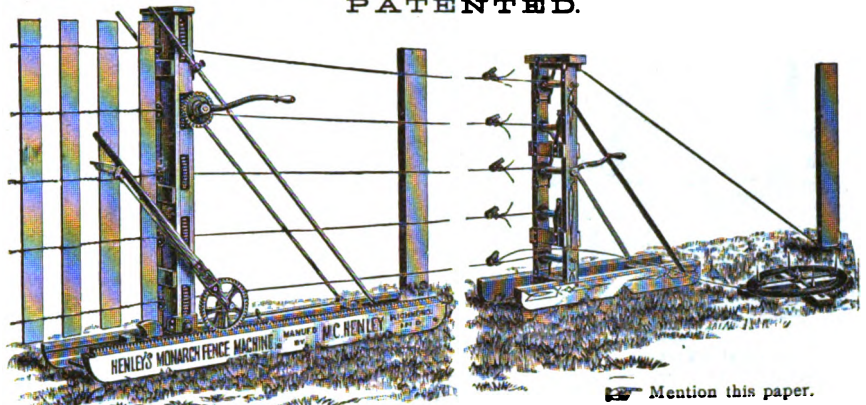
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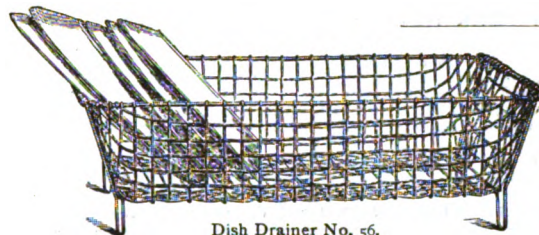
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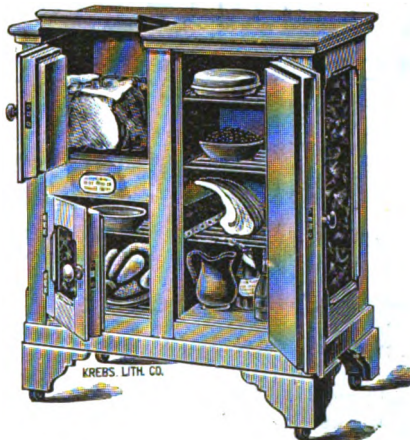
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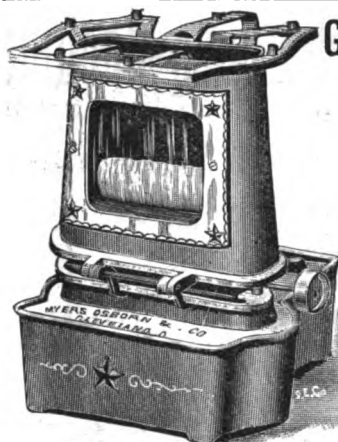
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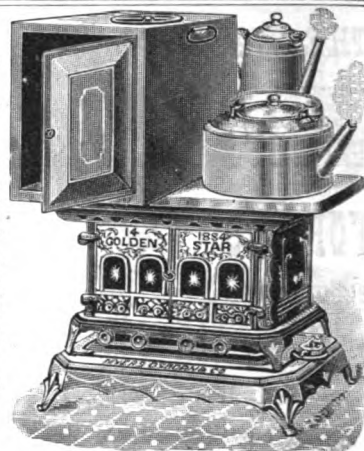
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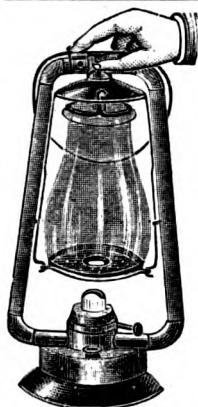
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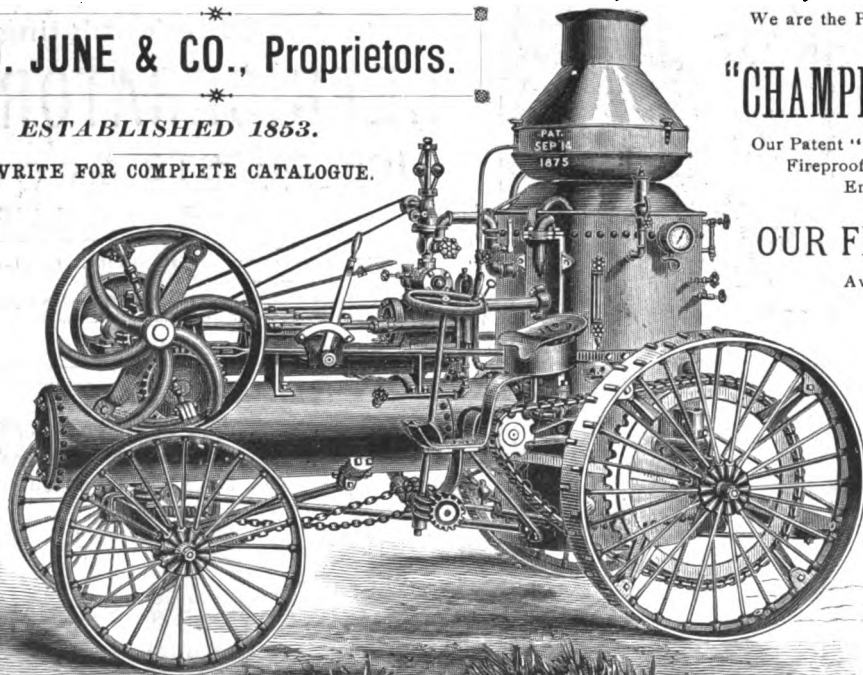
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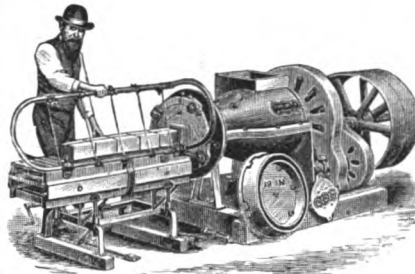
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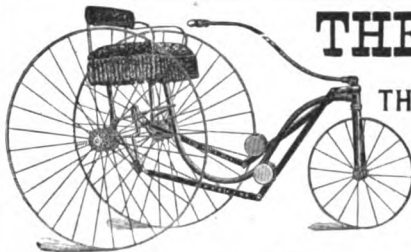
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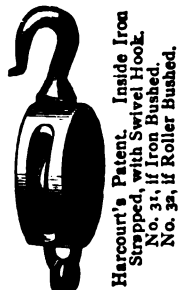
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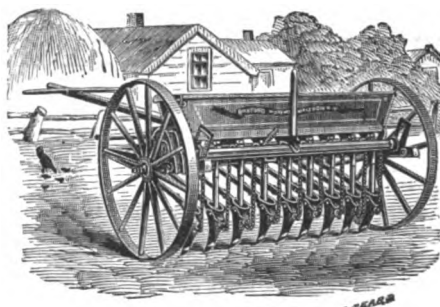
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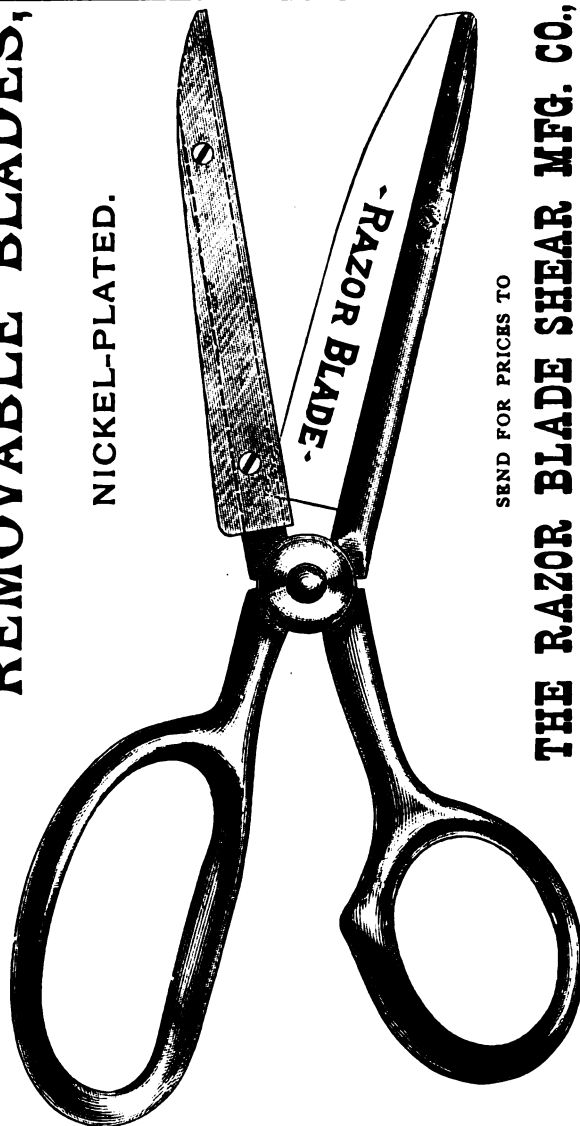
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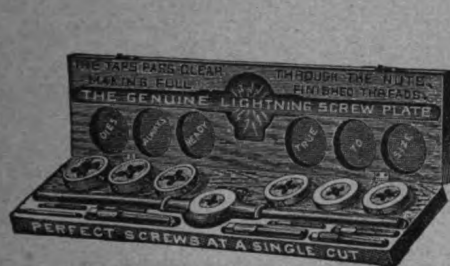
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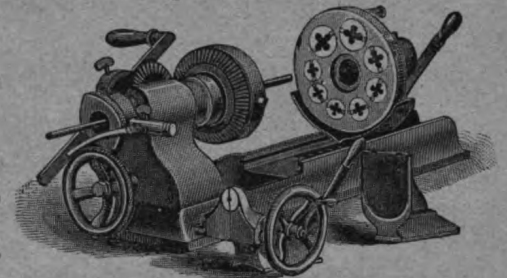
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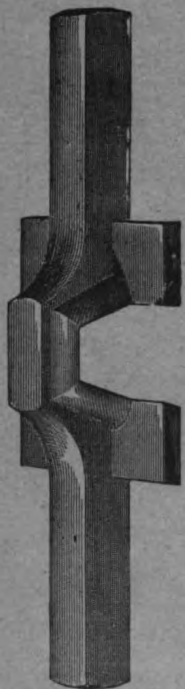
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NEW YORK, OCTOBER, 1886.

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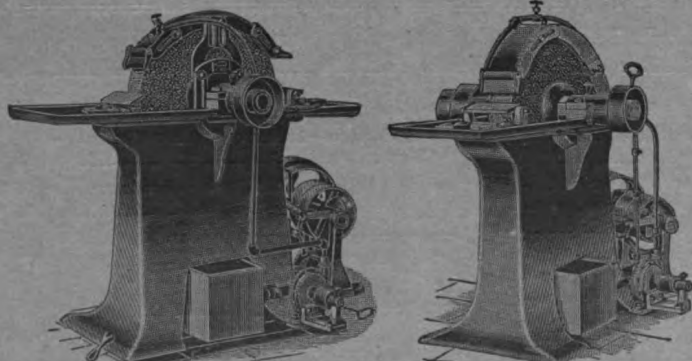
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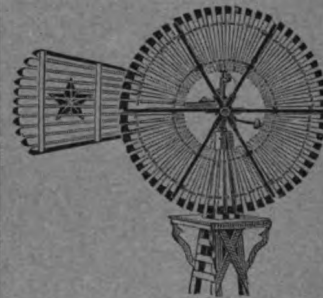
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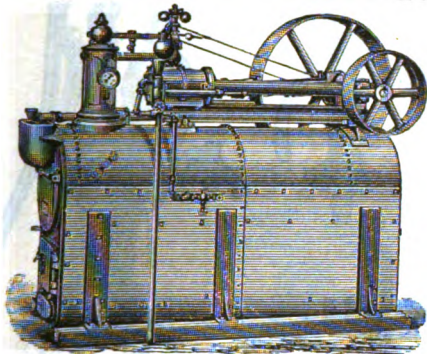
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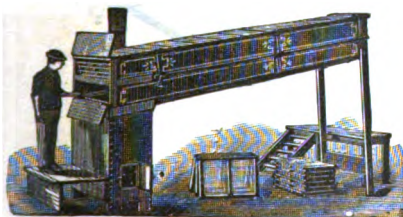
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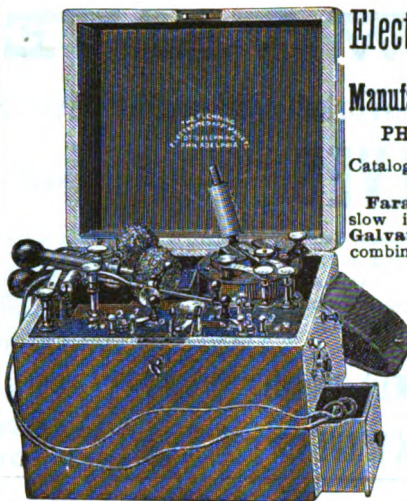
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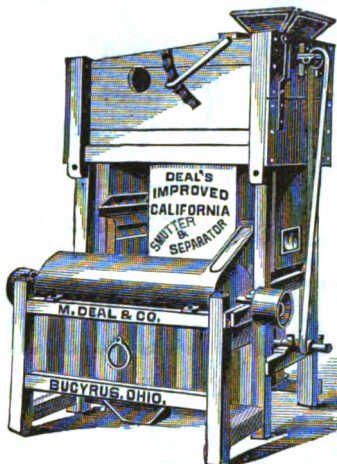
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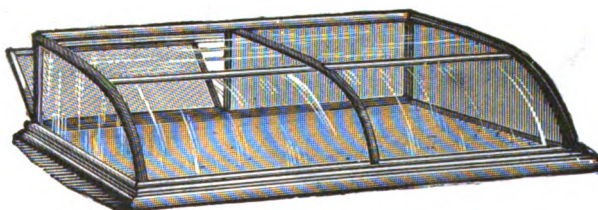
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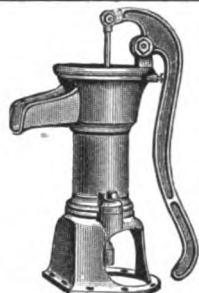
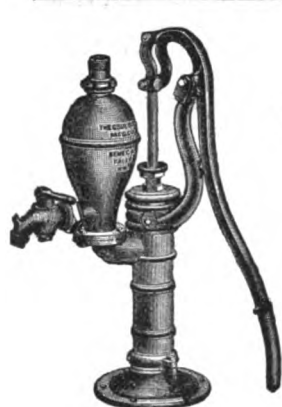
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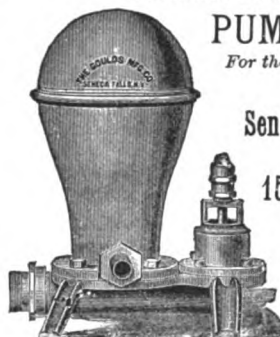
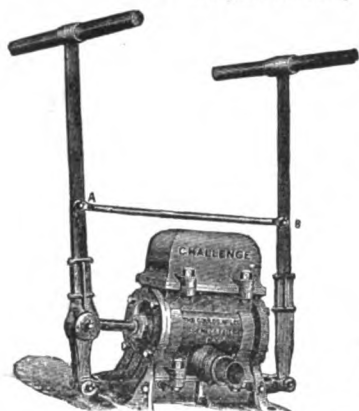
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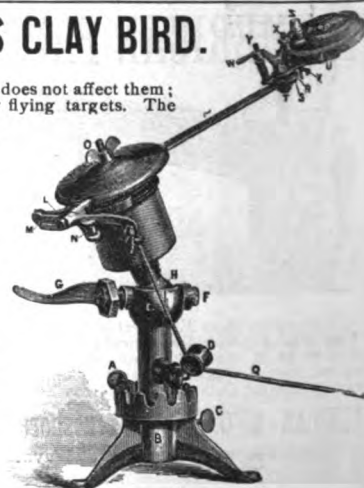
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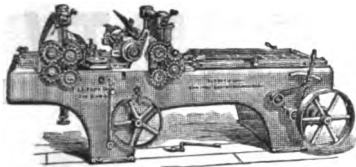
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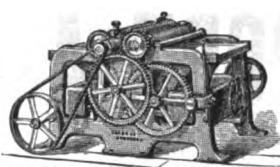
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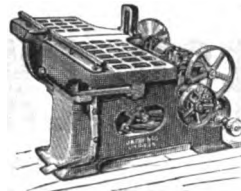




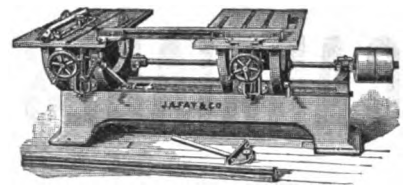
No. 3½.—Pacific Planer and Matcher.



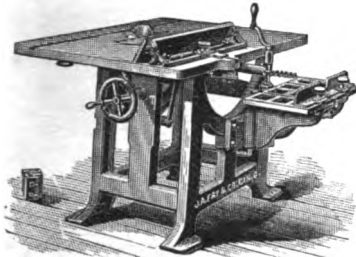
No. 4½.—Cabinet Surfacer.



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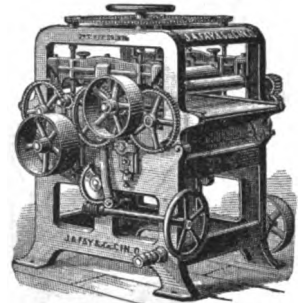


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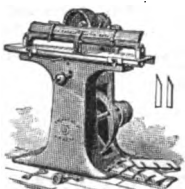
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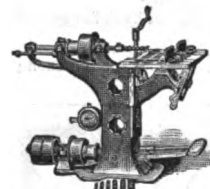
D. L. LYON, Sec'y.



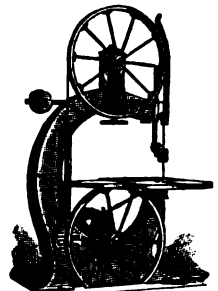
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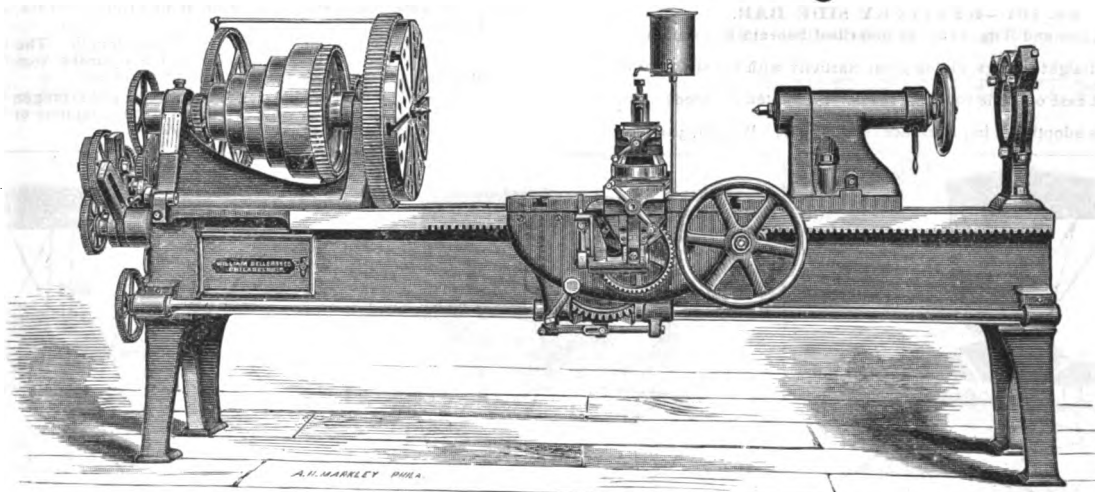


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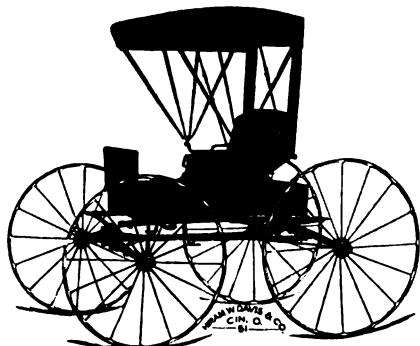
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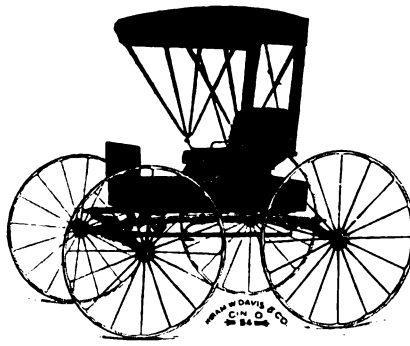
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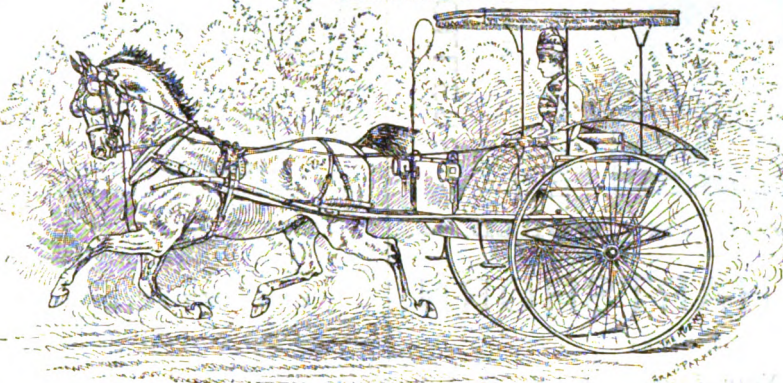
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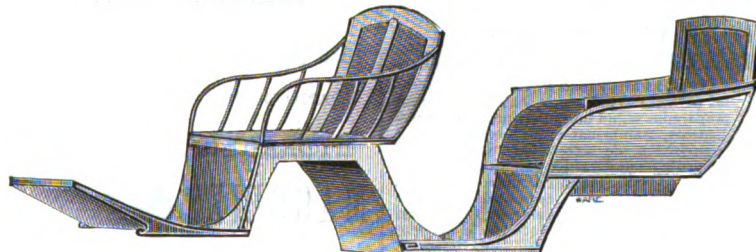
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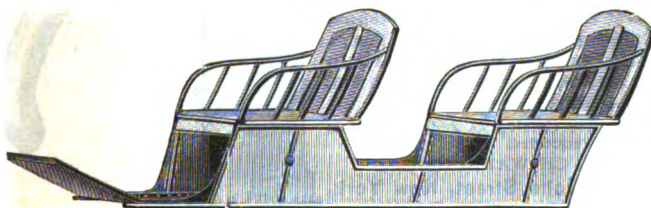
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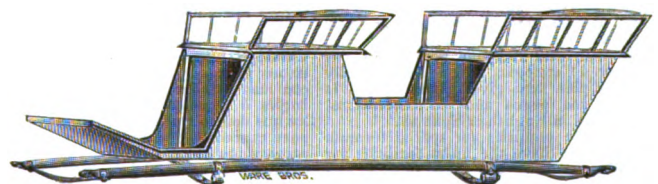
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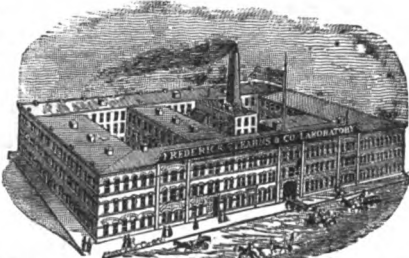
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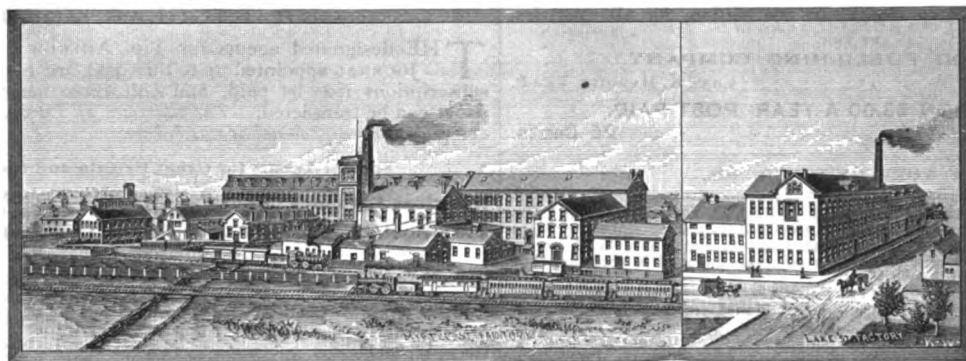
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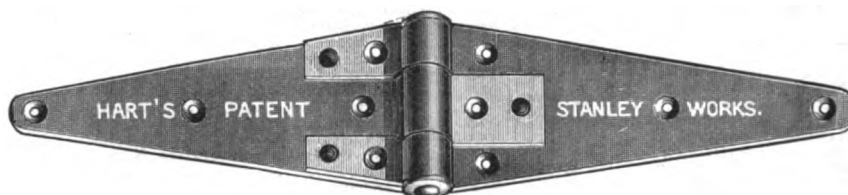
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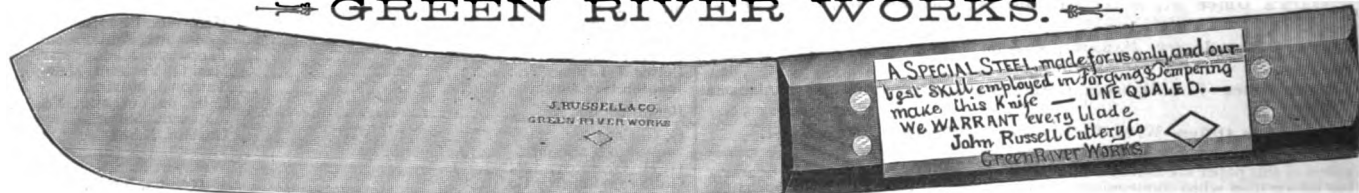
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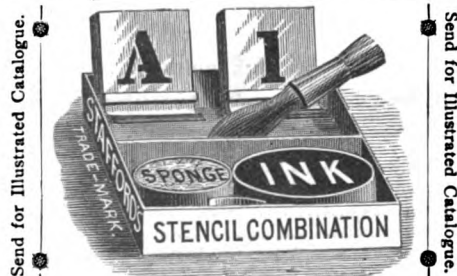
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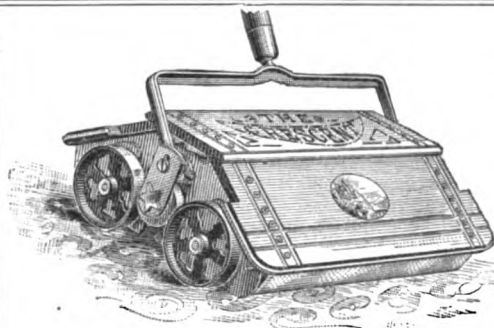
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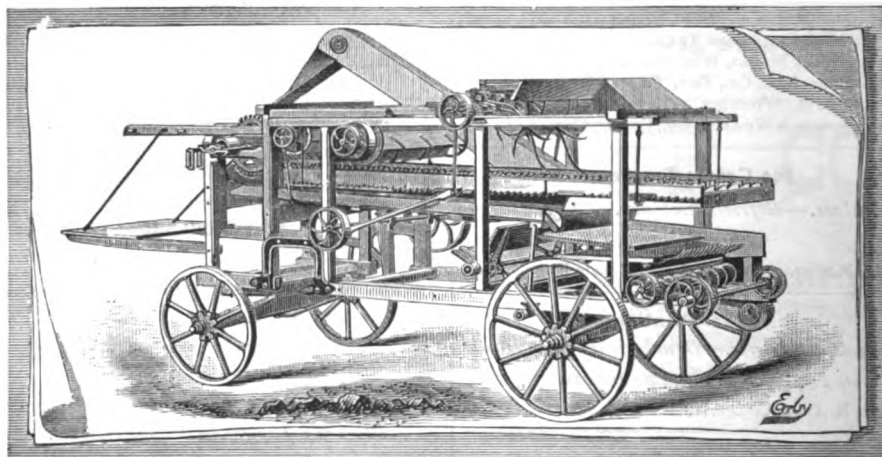


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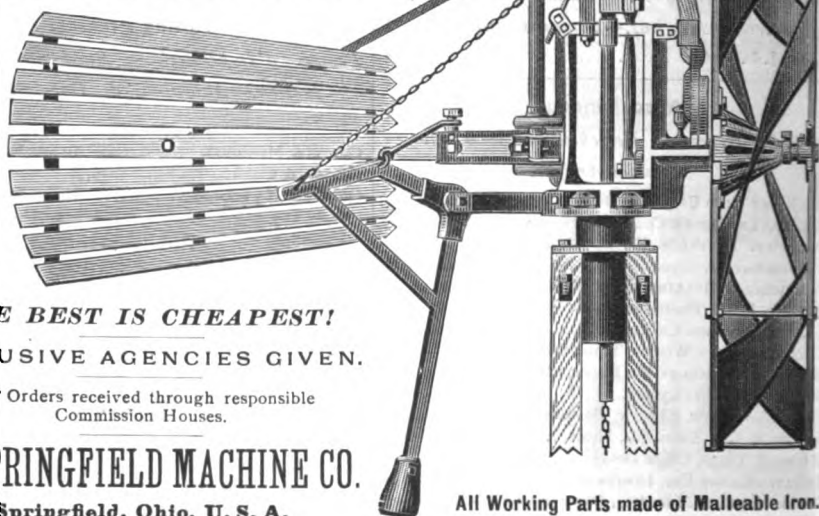
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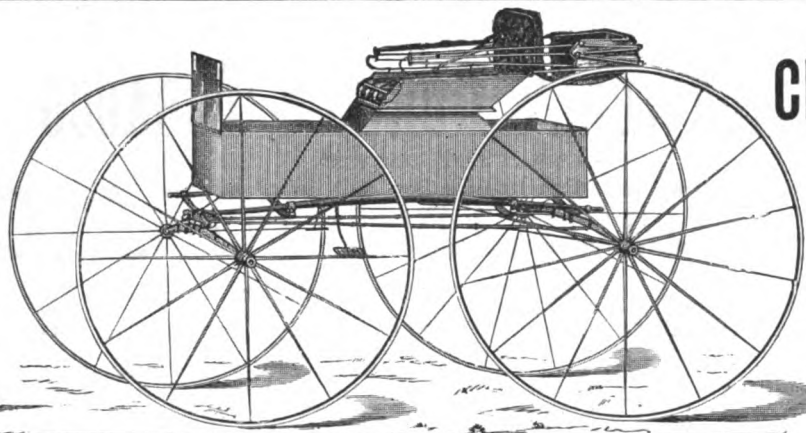
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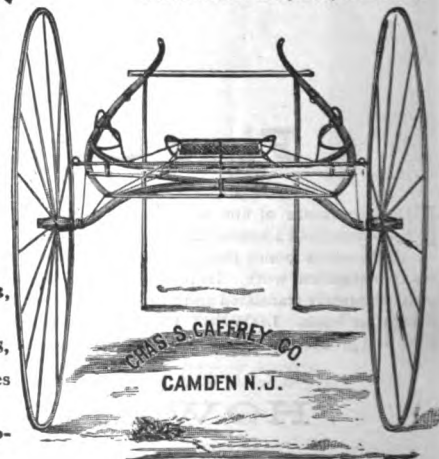
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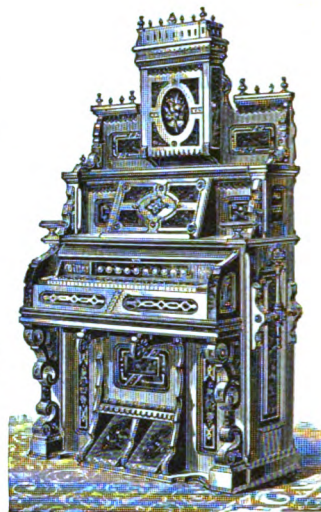
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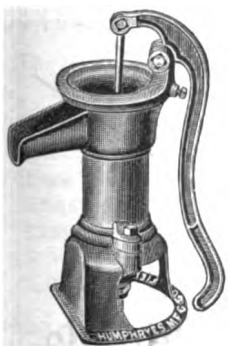
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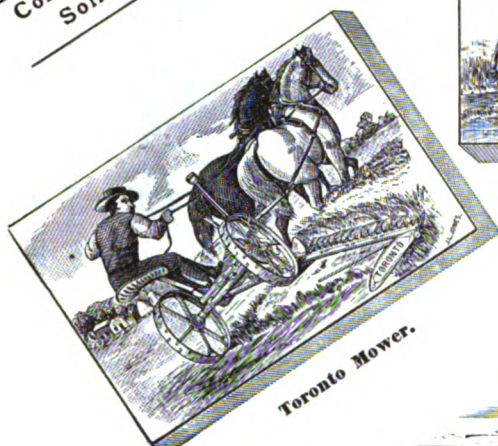
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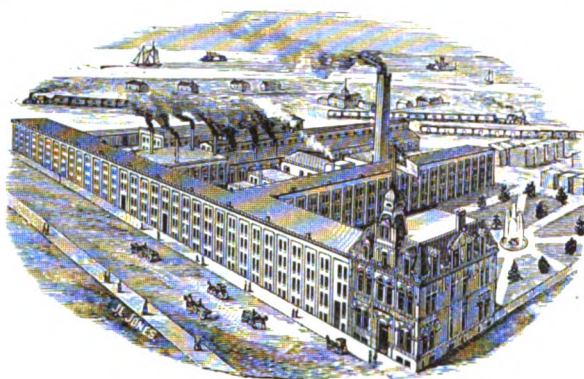
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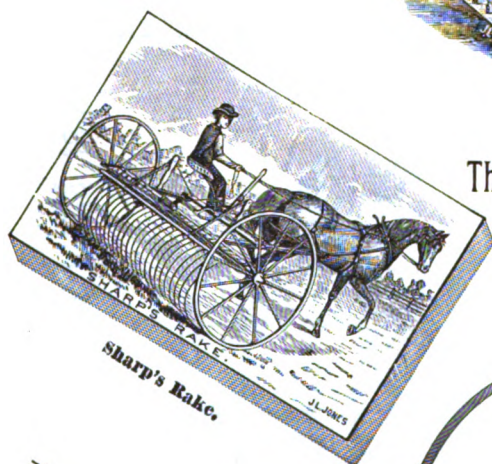
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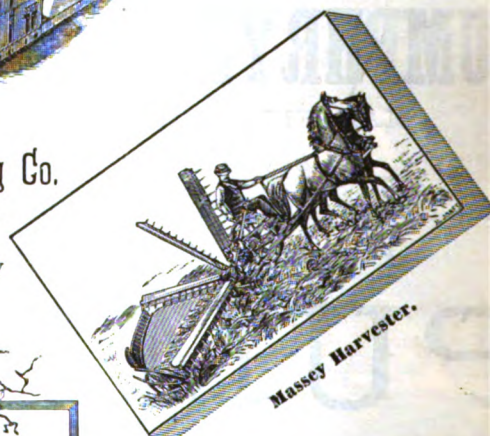
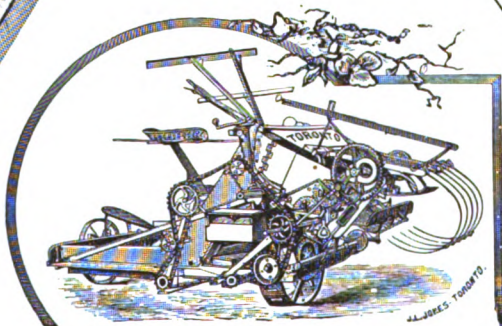
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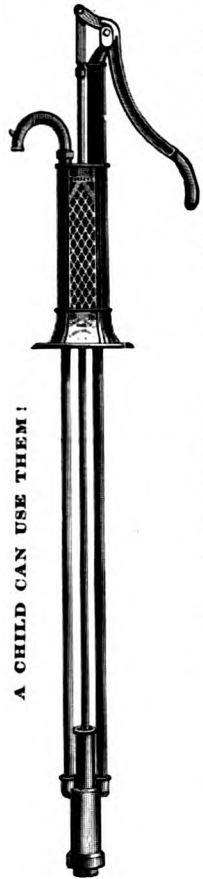


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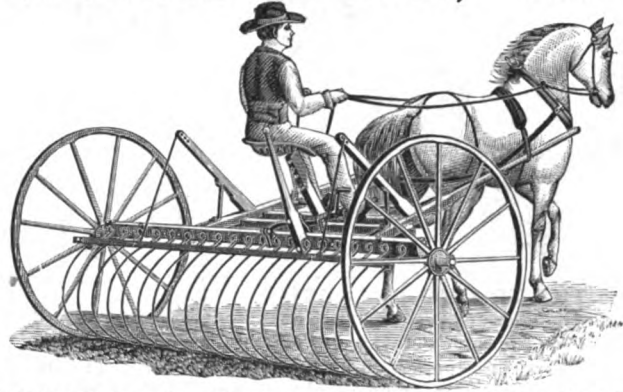
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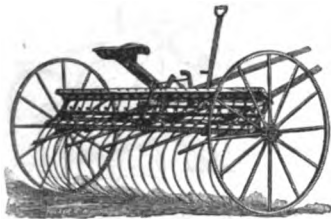
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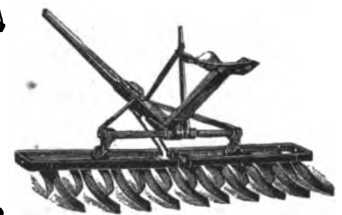
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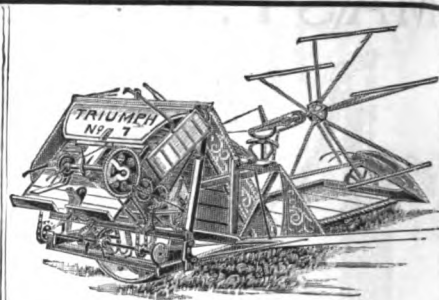
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SPECIAL ATTENTION GIVEN TO EXPORT ORDERS.

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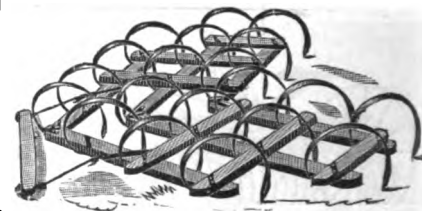
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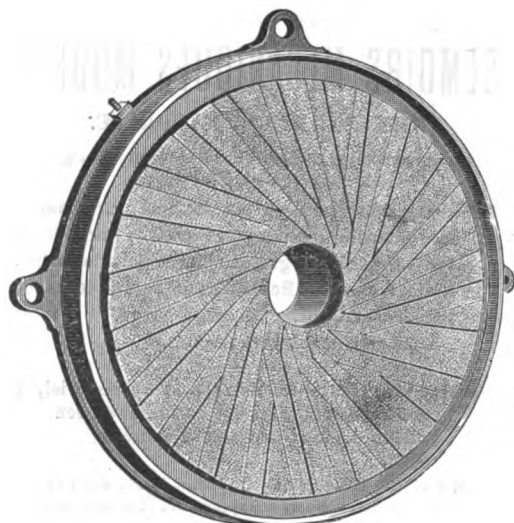
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A Precios Modicos. UTICA, N. Y., E. U. de A.



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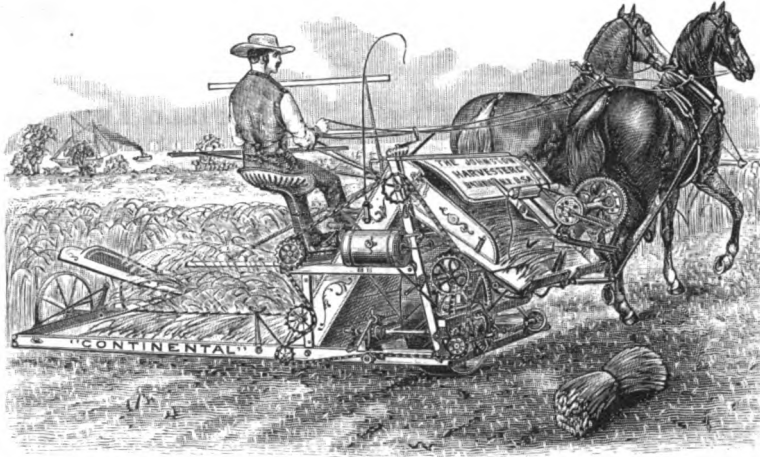
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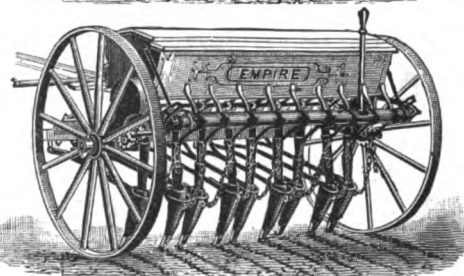
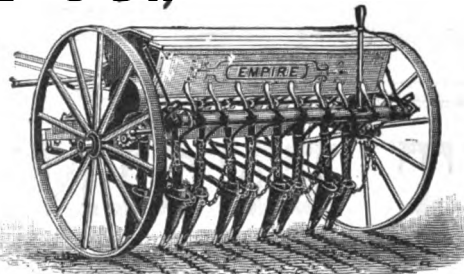
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Unterricht über dem Weizenbanem umsonst gesandt zu denjenigen welche diese Zeitung erwahren.

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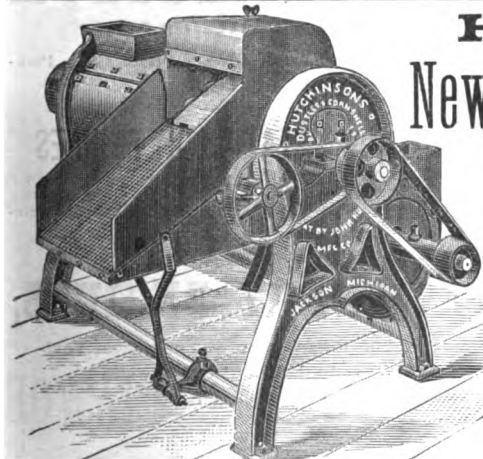
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Full length of machine, 5 ft.; height, 3 ft. 6 inches; motion of cylinder, 800 per minute; driving-pulley, 8 inches diameter by 6 inches face; weight, 650 pounds.

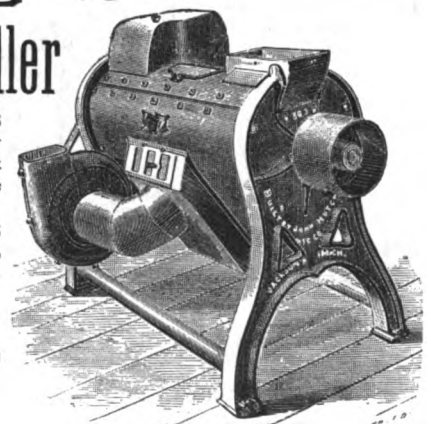
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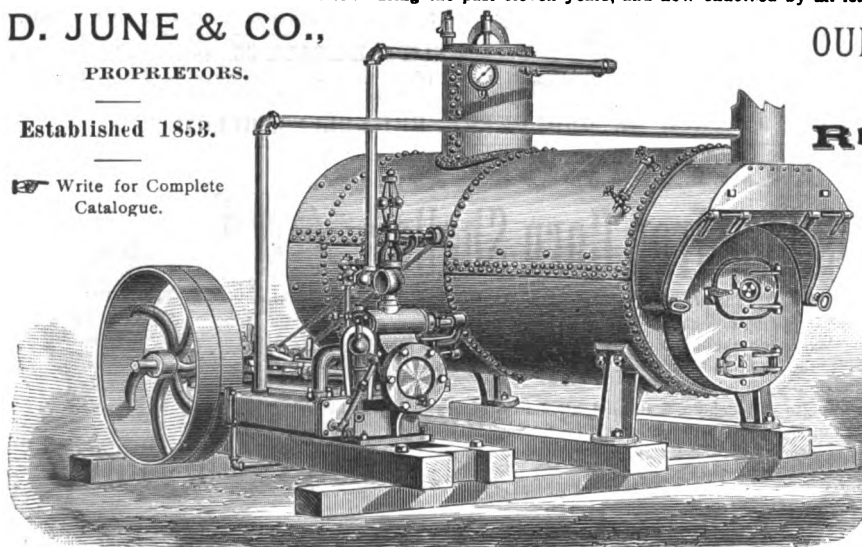
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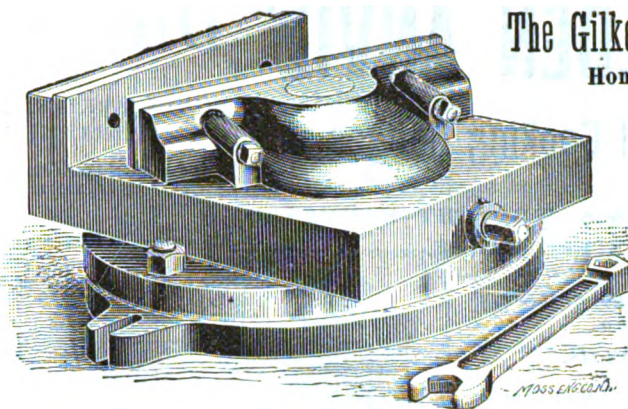
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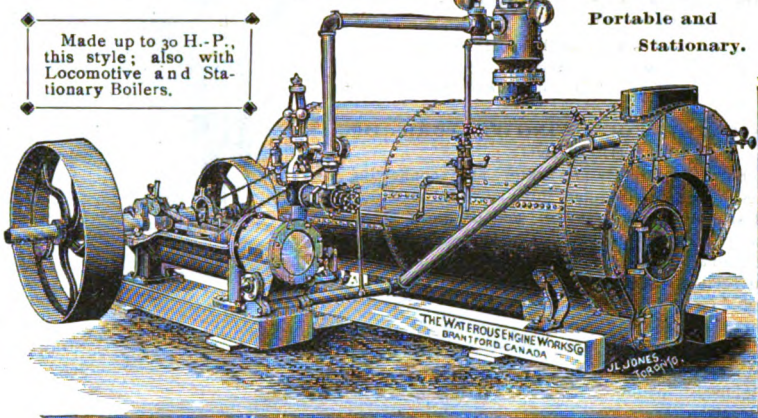
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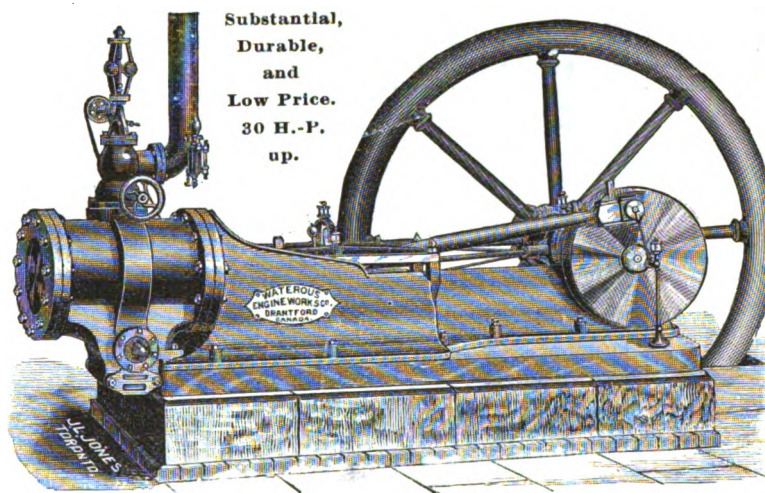
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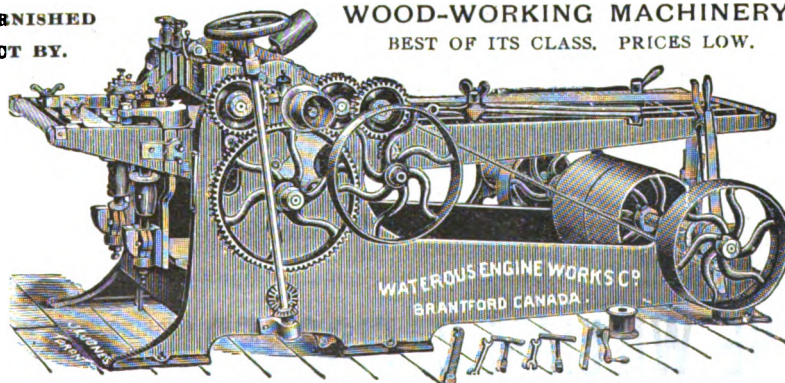
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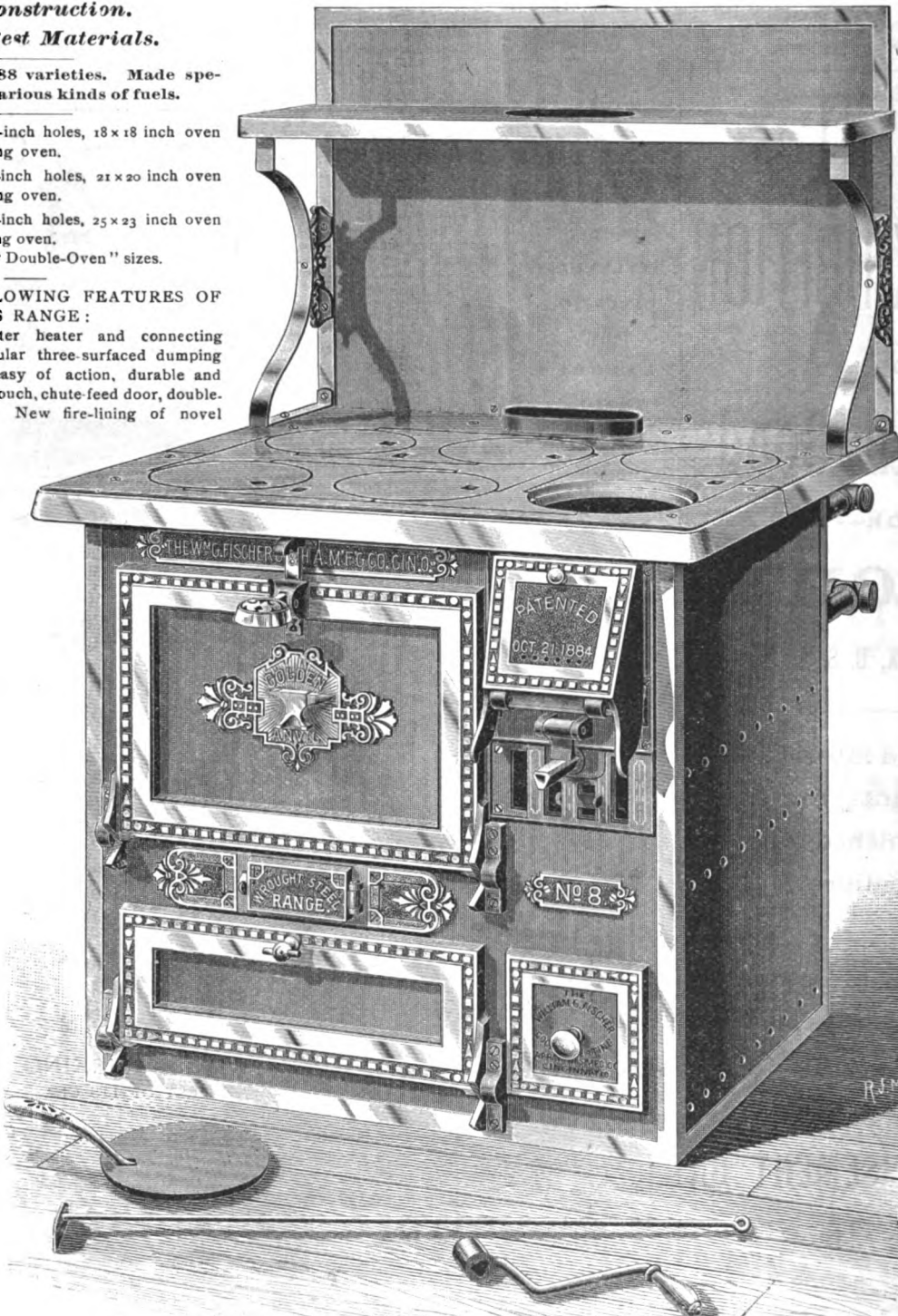
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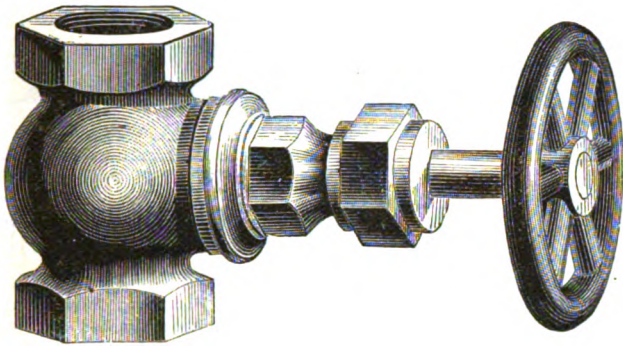
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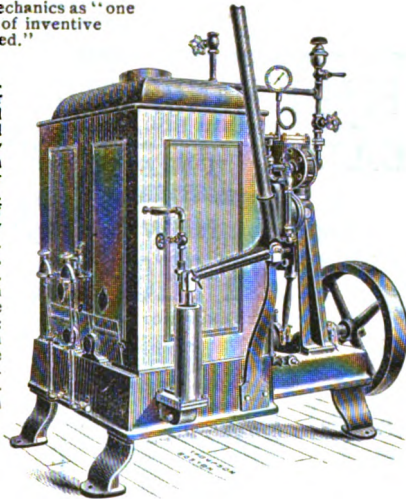
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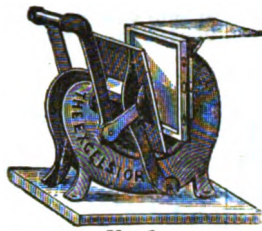
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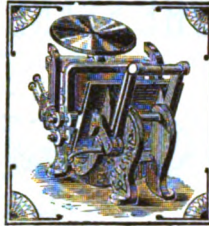
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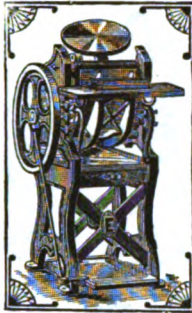
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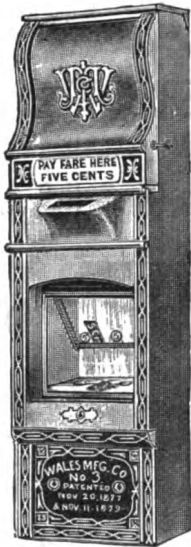
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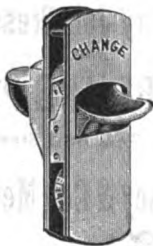
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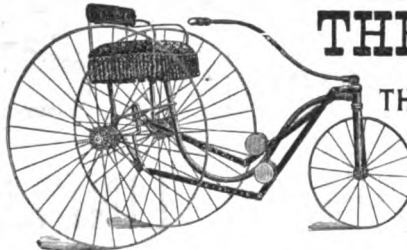
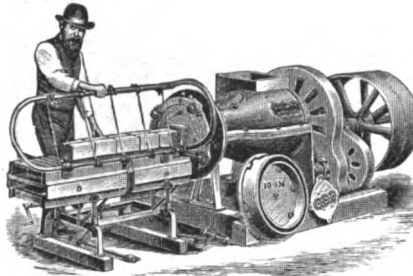
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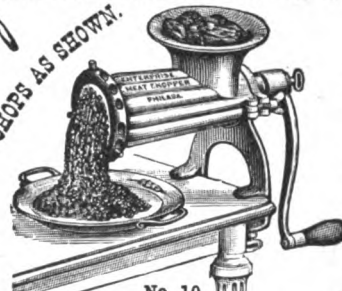
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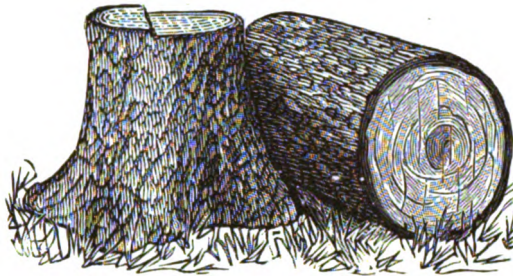
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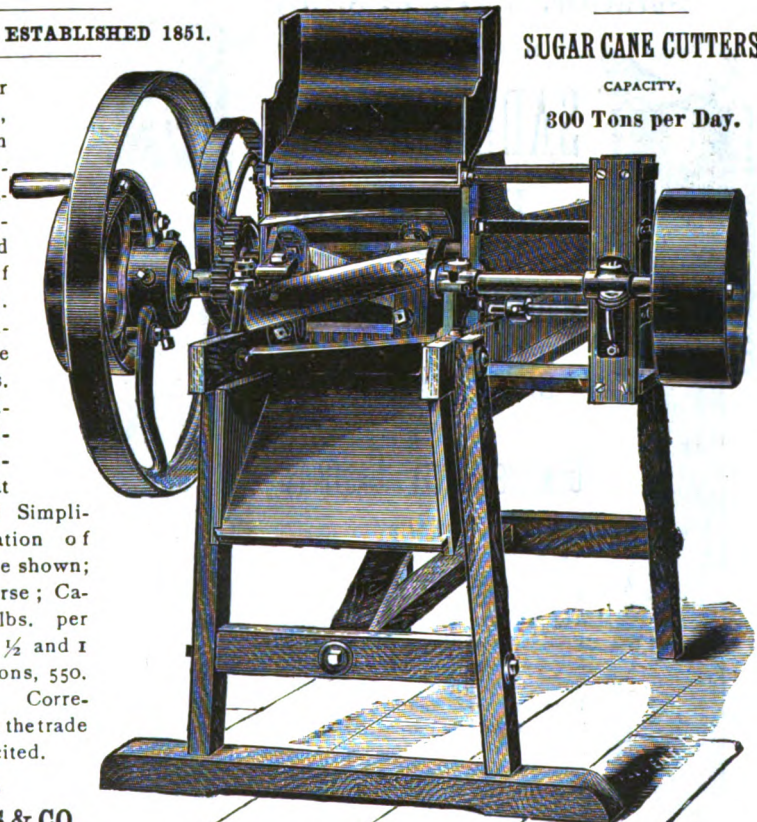
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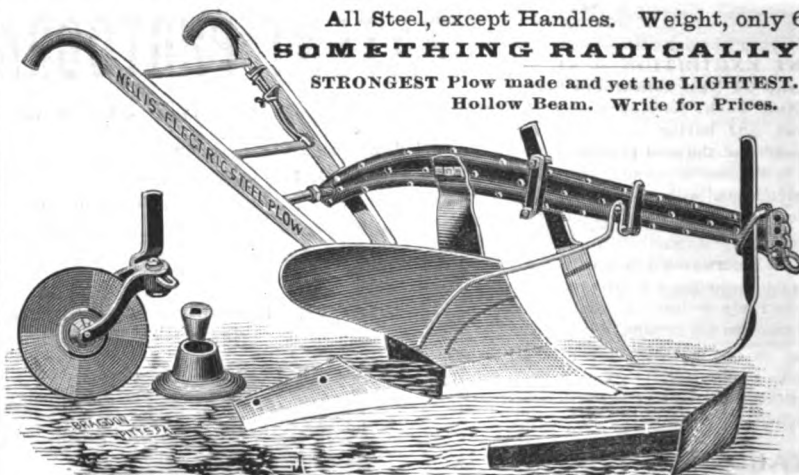
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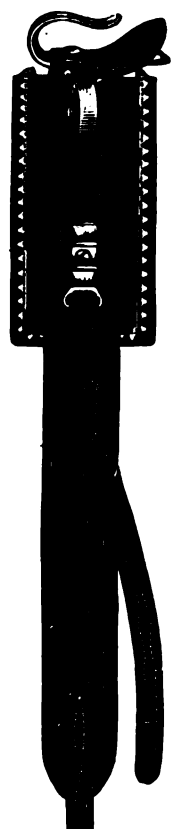
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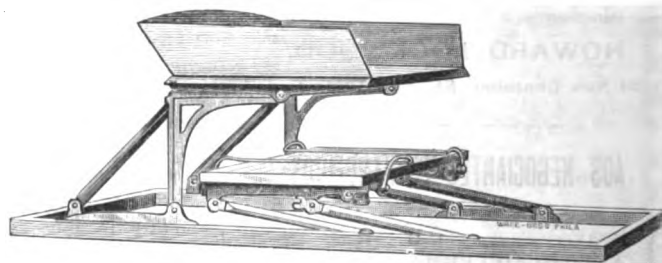
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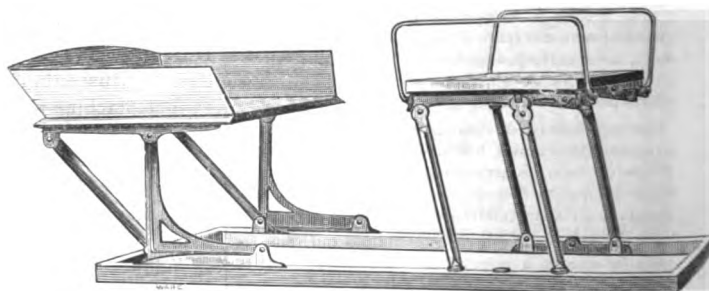
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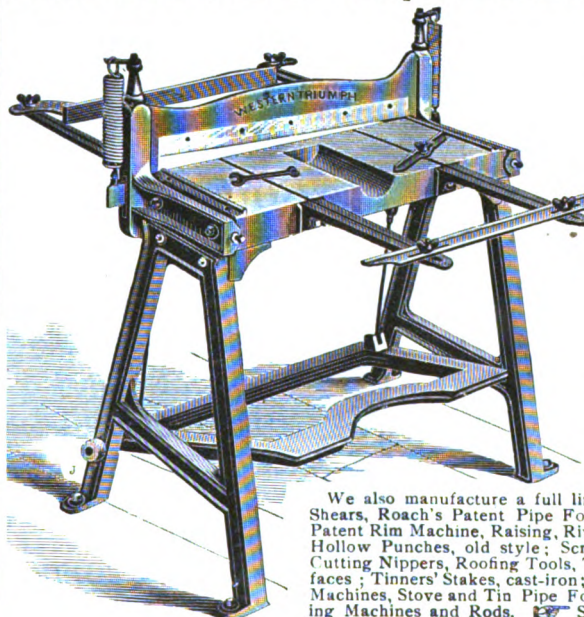
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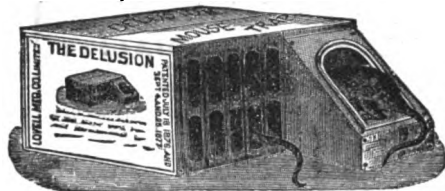
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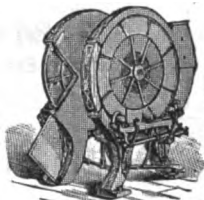
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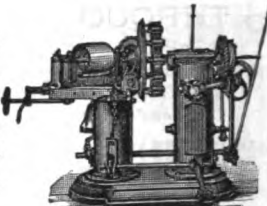


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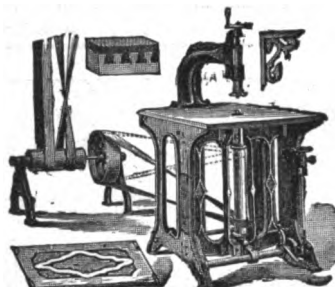
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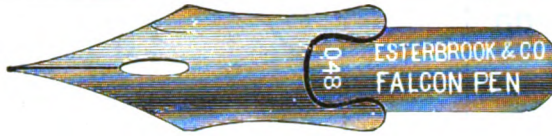
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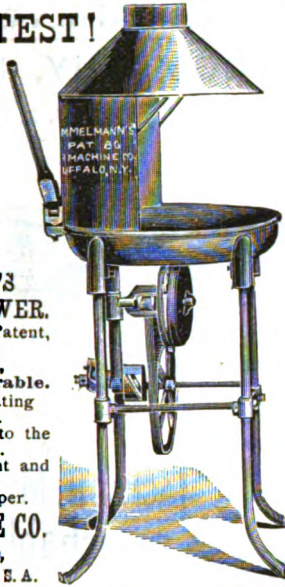
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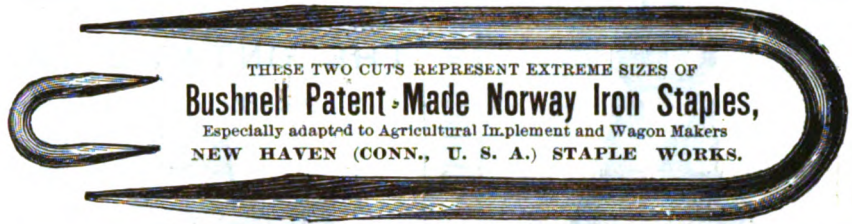
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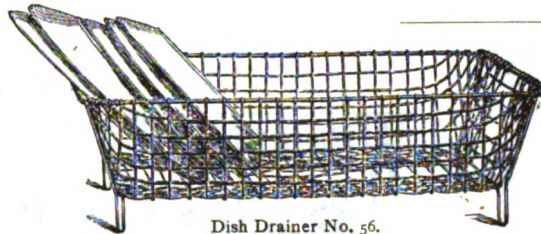
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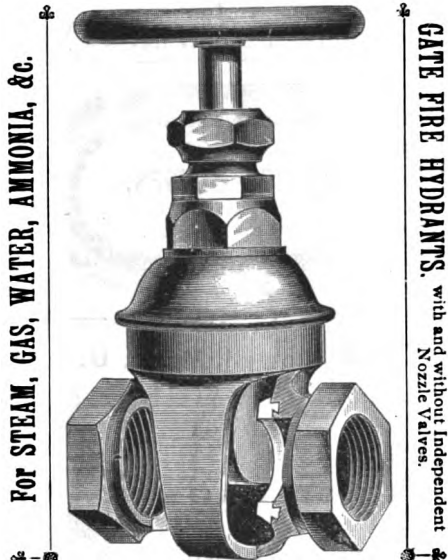
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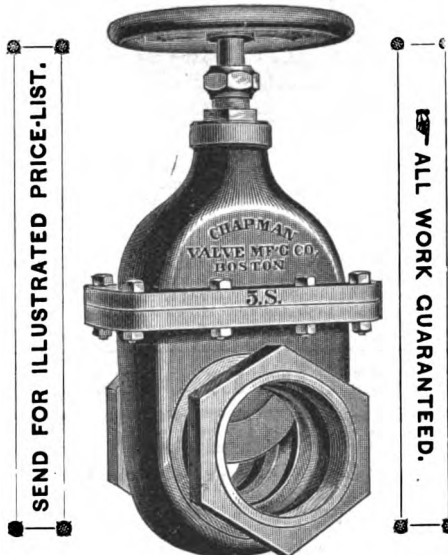


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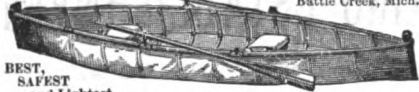
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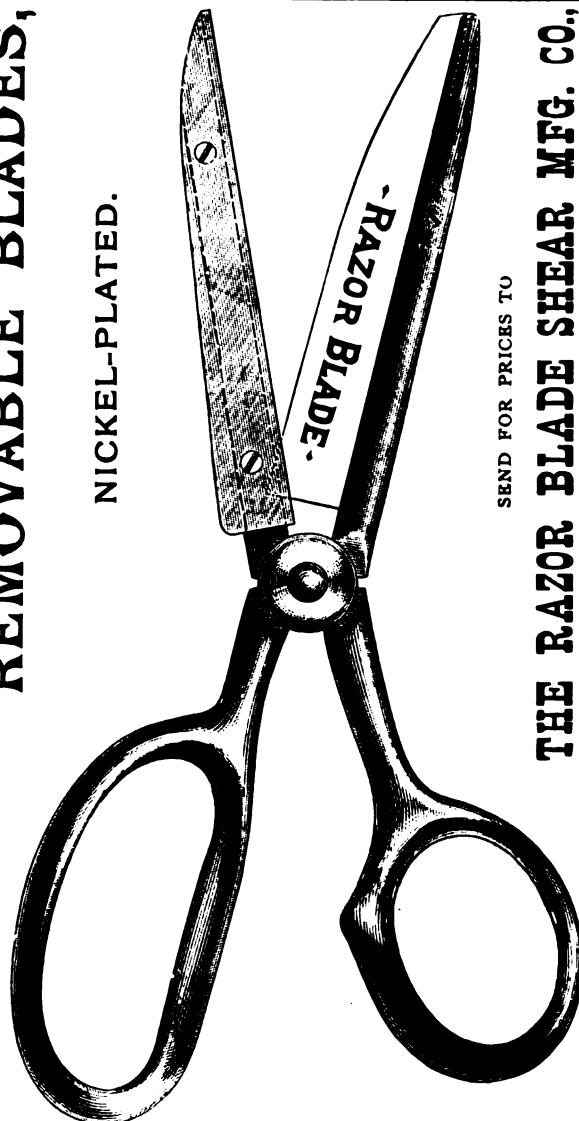
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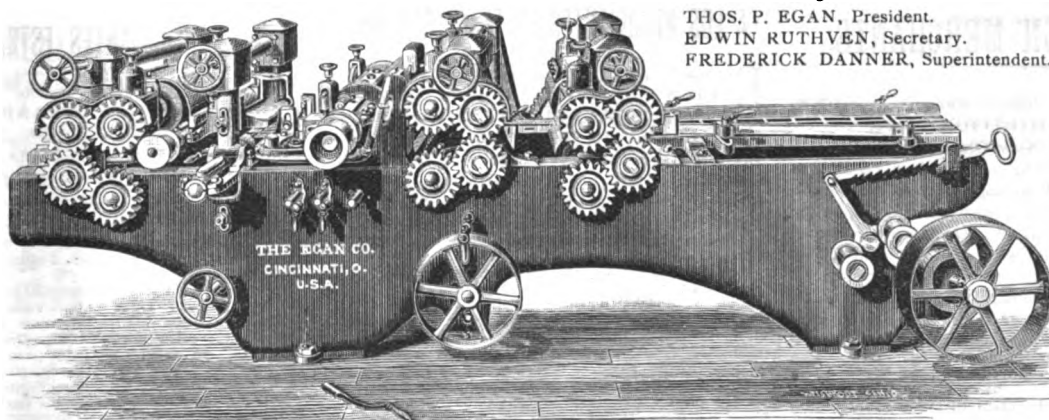
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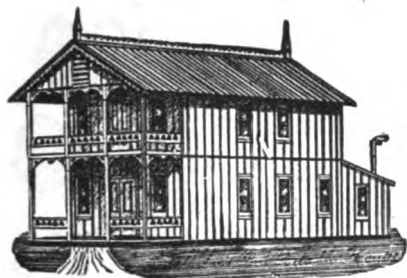
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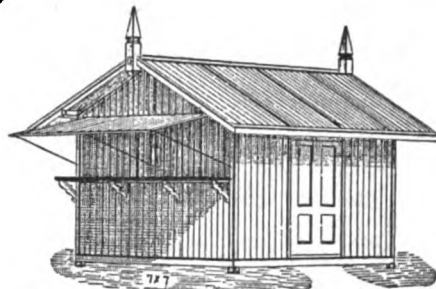
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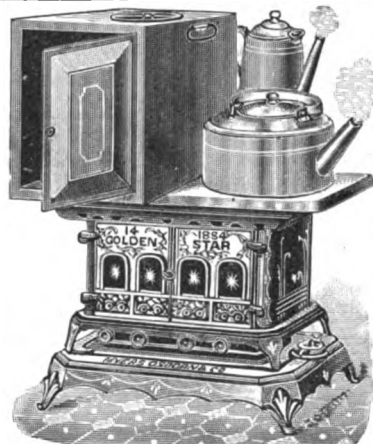
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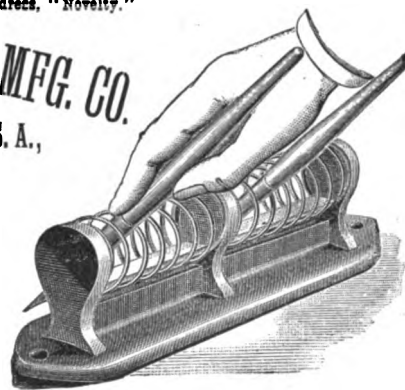
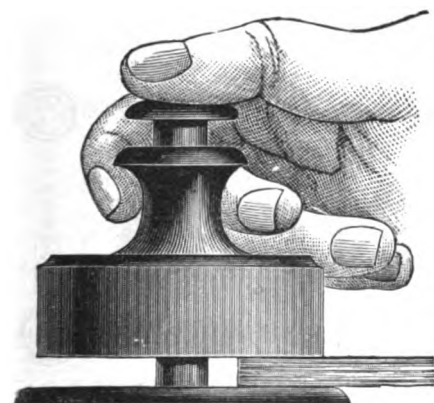
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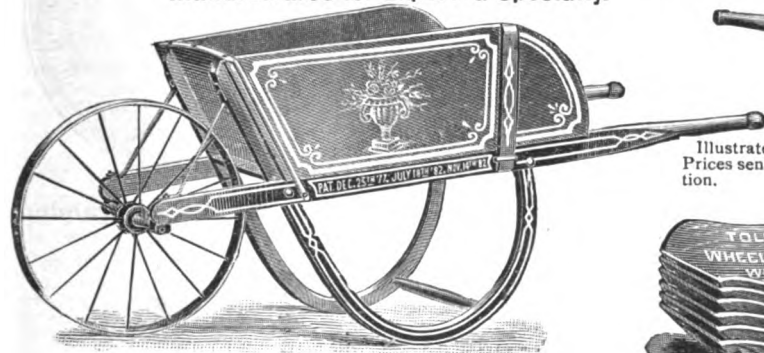


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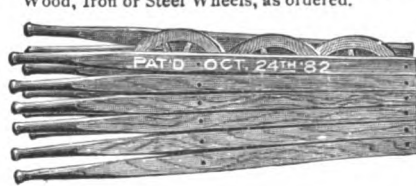
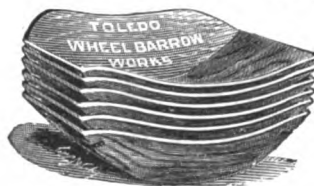
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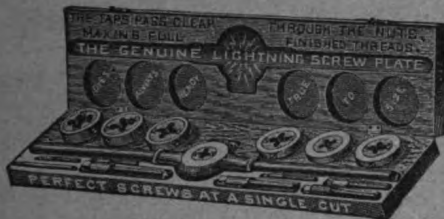
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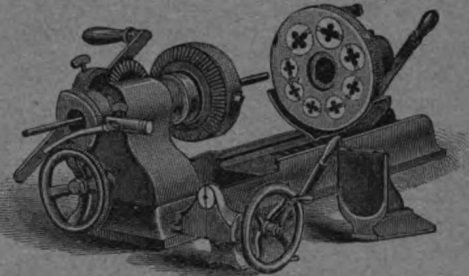
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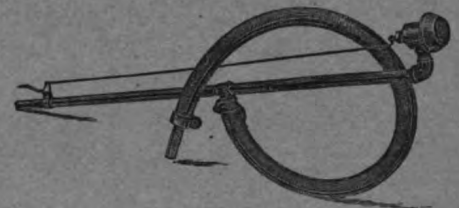
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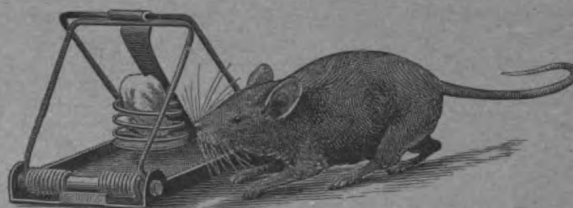
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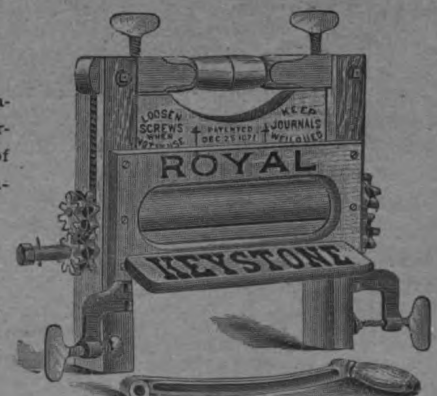
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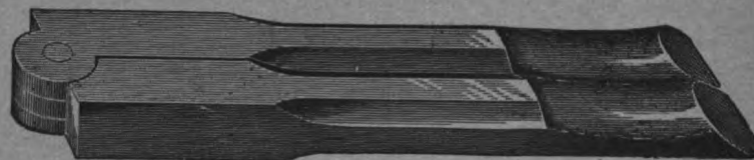
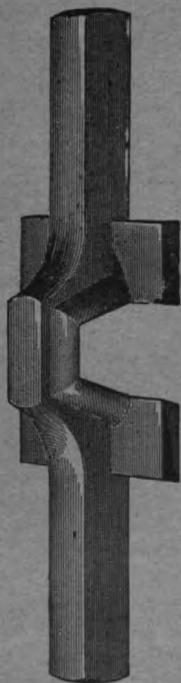
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VOL. XVIII.—NO. 5.

NEW YORK, NOVEMBER, 1886.

WHOLE NO. 114.

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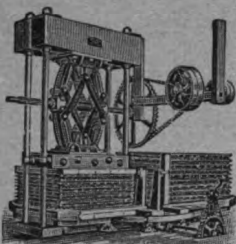
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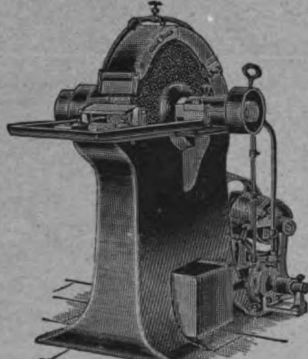
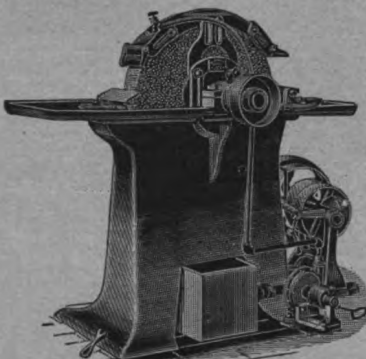
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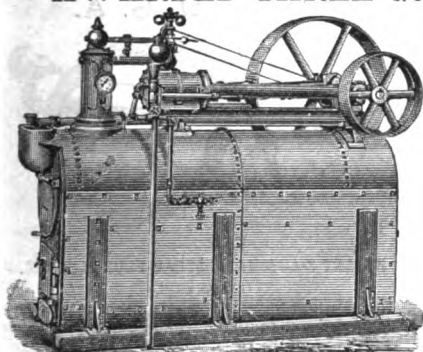
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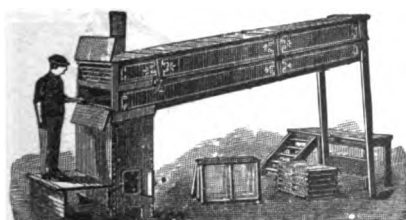
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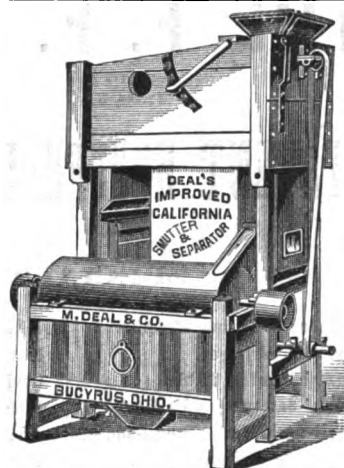
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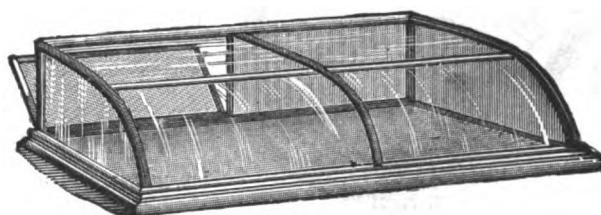
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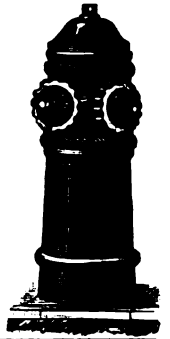
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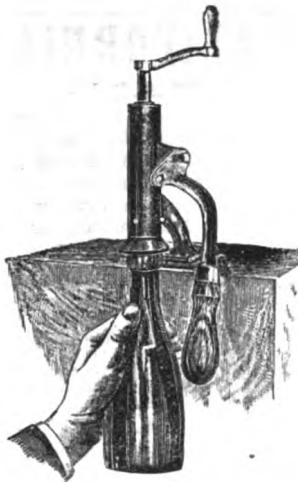


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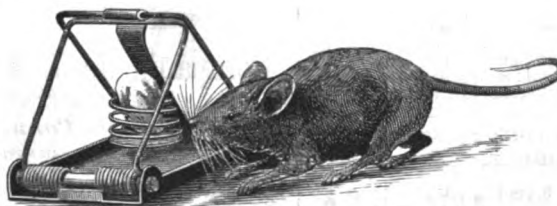
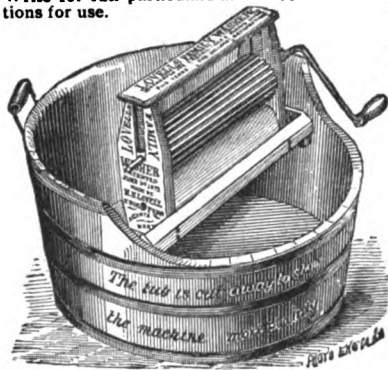
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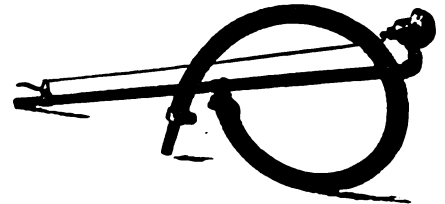
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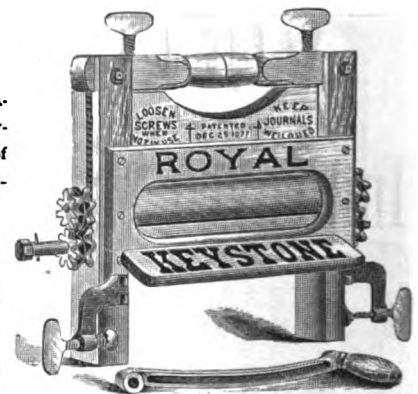


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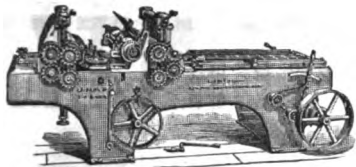
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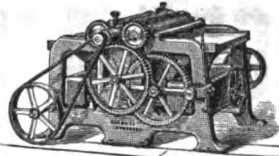
BRUCHEN vollkommen. Finden nicht ihresgleichen im Fluge. Weder Regen noch Feuchtigkeit schaden ihnen. Man kann sie in irgend einem Klima gebrauchen. Sie sind halb so billig wie irgend andere fliegende Scheiben. Die einzigen Vögel aus Thon oder Composition, welche beim Herabfallen auf den Boden nicht zerbrechen. Unser neuer Vogel für Clubs, wo man leichteres Schiessen vorzieht. Unser alter Vogel für Clubs, wo man schwieriges Schiessen vorzieht. Man wende sich an

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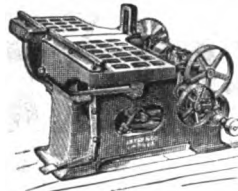




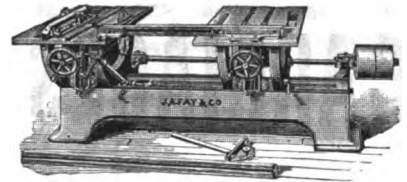
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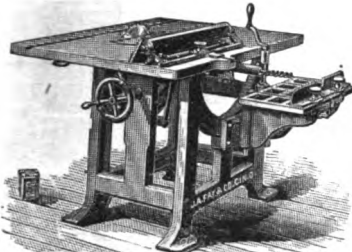
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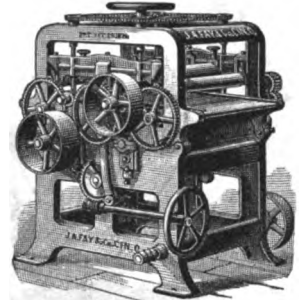
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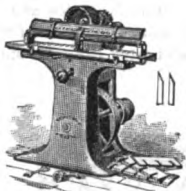
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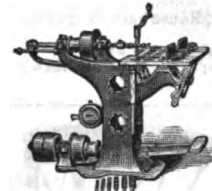
D. L. LYON, Sec'y.



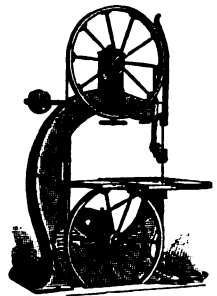
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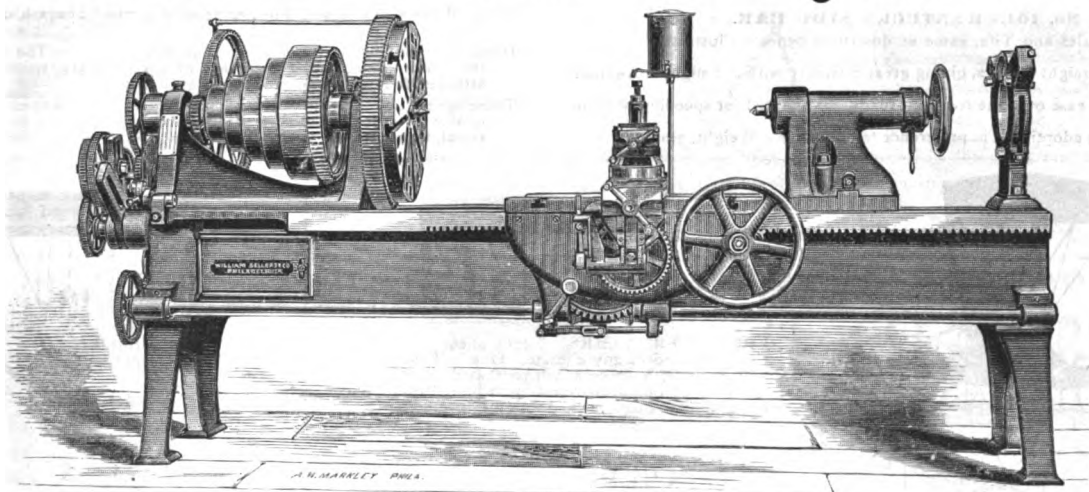


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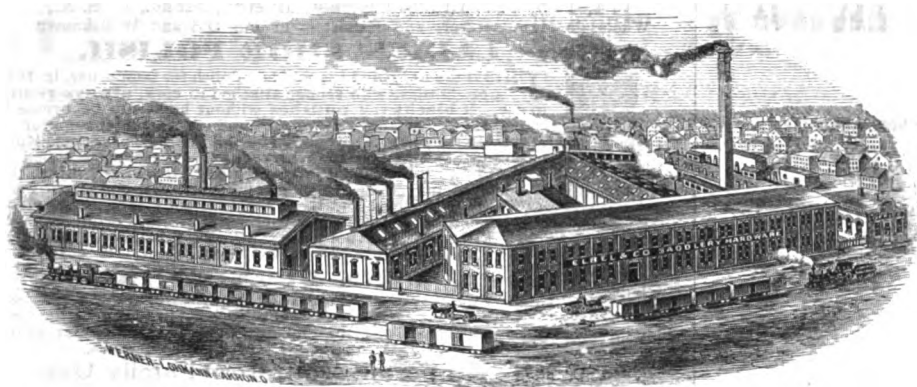
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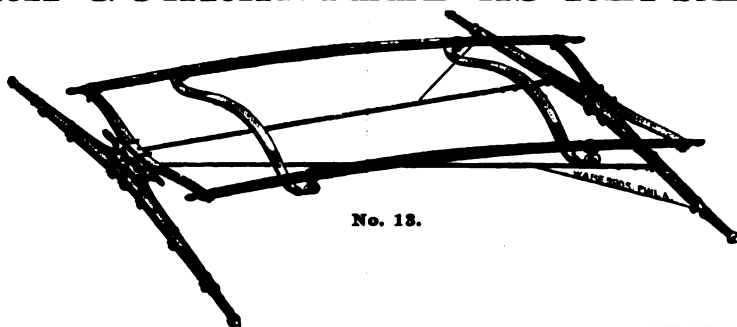
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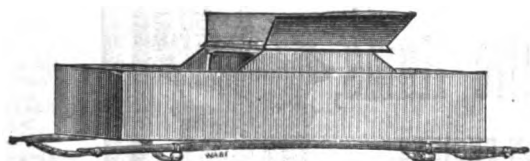
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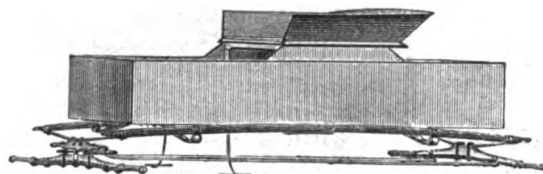
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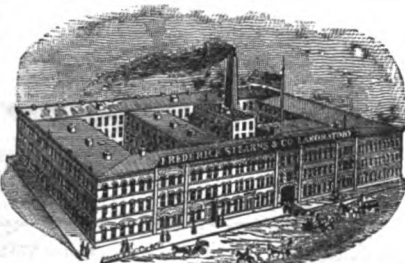
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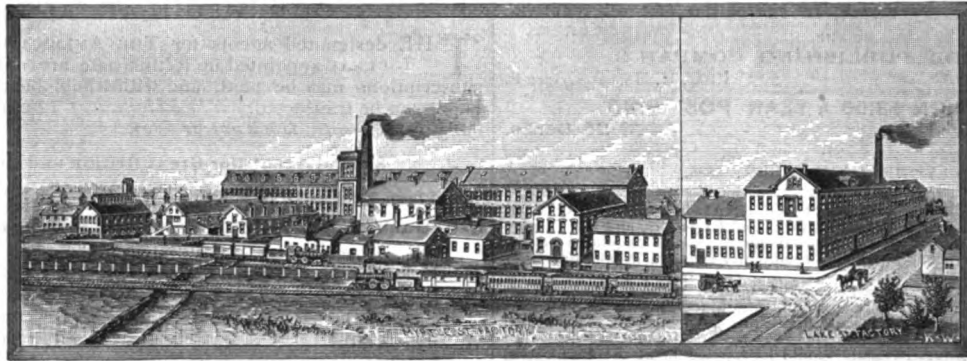
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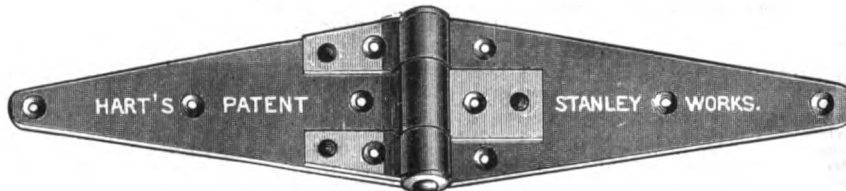
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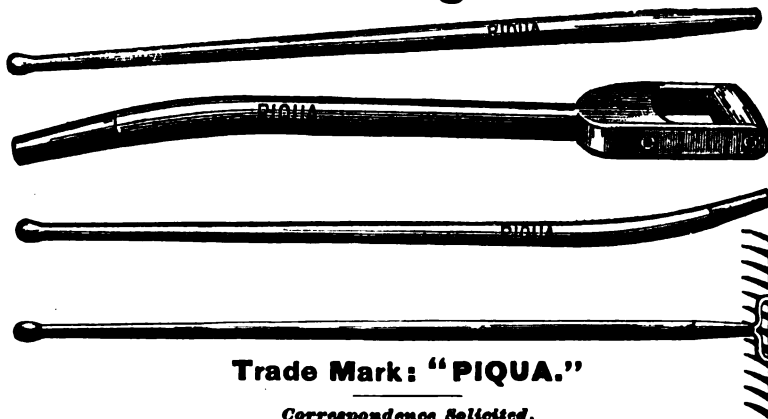


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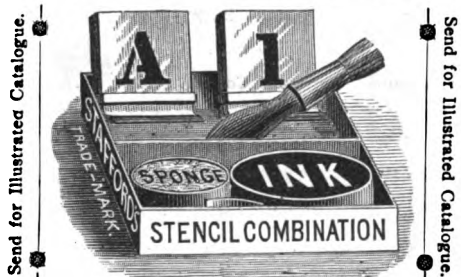
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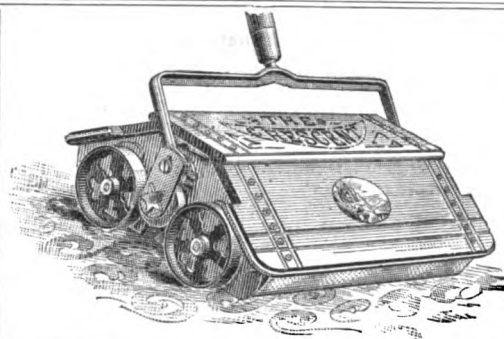
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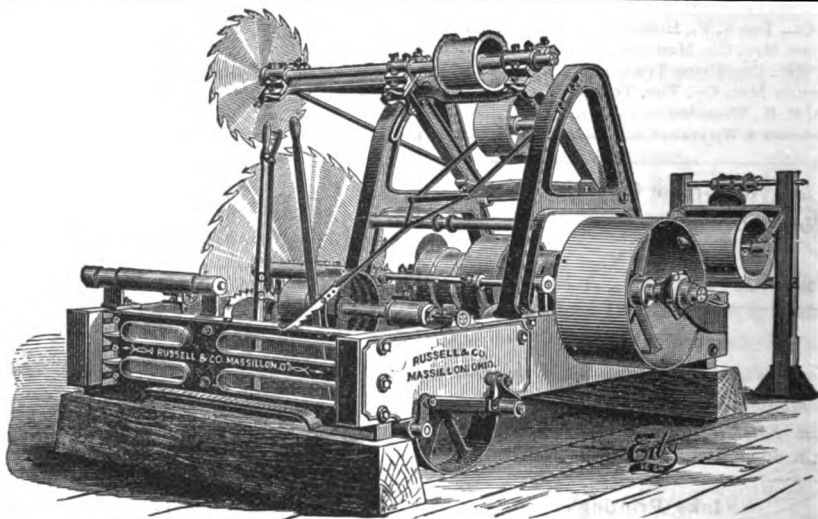


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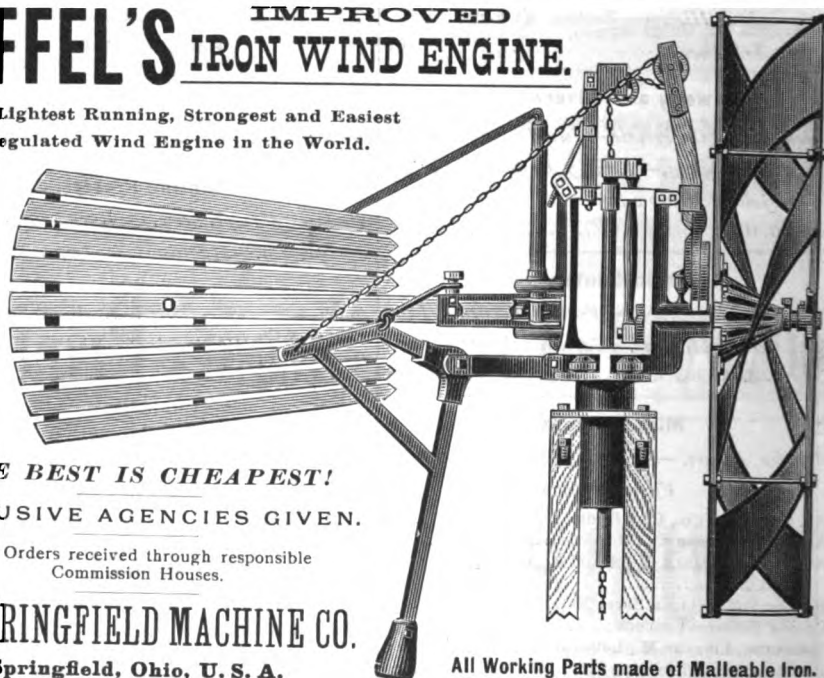
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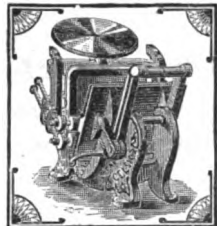
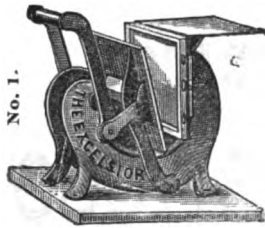


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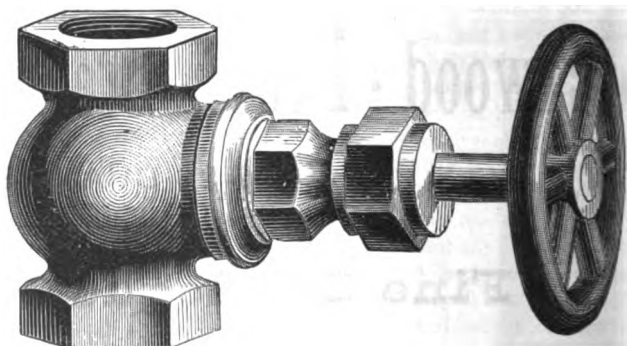
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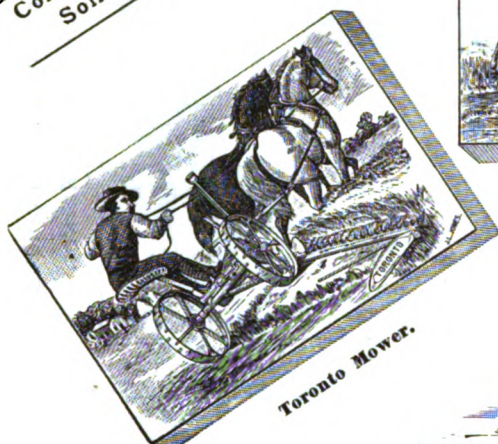
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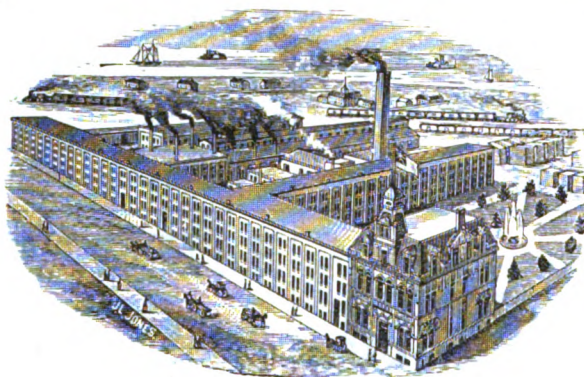
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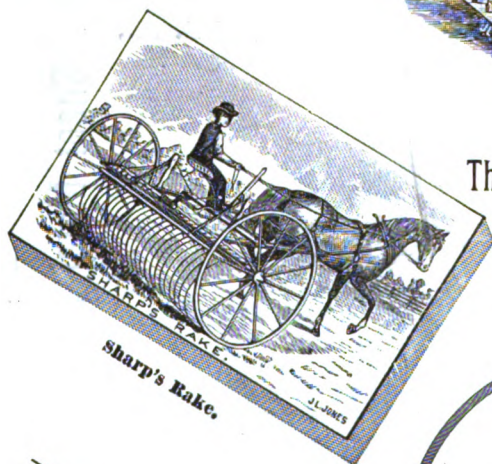


Catalogue Upon
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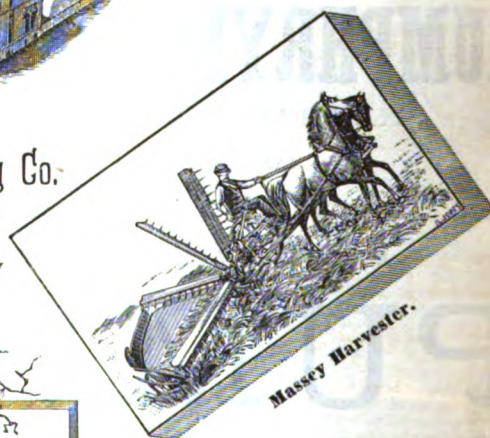
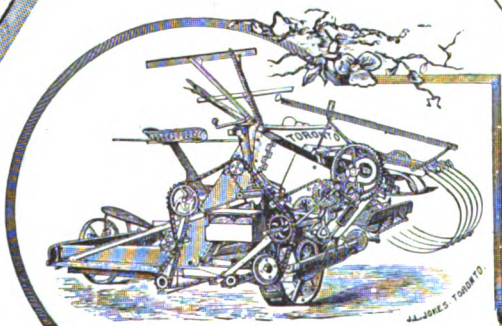


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TORONTO, ONTARIO, CANADA.

The Oldest and Largest
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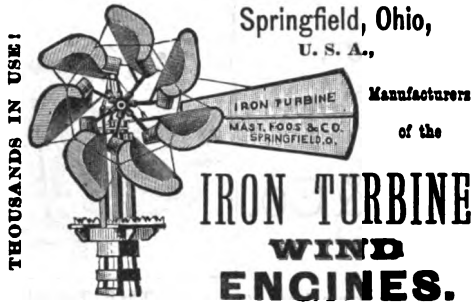


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in 1847.



Experience
38 Years.

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U. S. A.,**BUCKEYE FORCE PUMP**

Works easy and throws a constant stream. Has Porcelain-lined and Brass Cylinders. Is easily set. Is the Cheapest and Best Force Pump in the World for Deep or Shallow Wells. Over 100,000 in use. Never freezes in winter. Send for circulars and prices, giving depth of well.

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Made in 10, 12, 14 and 16 in. cut.

Strong, Durable!
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FAR
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MACHINES
MADE.

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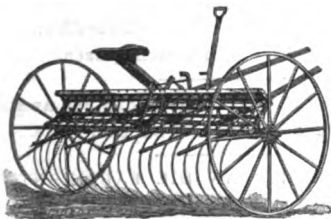
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Changes Quantity without change of gears.
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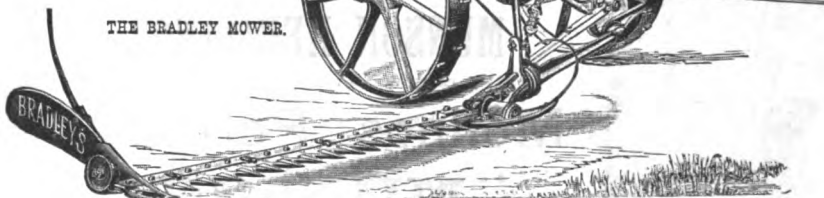
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Y
RASTRILLOS DE CABALLOS.**

De poco calado, convenientes y fáciles de manejar, bien hechos, muy bien acabados, de construcción sencilla y muy durables. Nuestros artefactos se adaptan a todos los países y tendremos mucho gusto en enviar catálogo completo a todos los que lo soliciten.

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J. S. BIRCH & CO., 38 Dey Street, New York, U. S. A.**A KEY
WILL WIND****THAT
ANY WATCH****AND NOT
WEAR OUT.****A KEY
WILL WIND****THAT
ANY WATCH****AND NOT
WEAR OUT.****AND NOT
WEAR OUT****No. 2.—Pocket Key, Brass, Fire Gilt.**

These Keys have achieved great success wherever introduced. They are mounted in thirty-seven different styles, Catalogue and full particulars of which will be forwarded on application. A Sample Gross of these Keys, assorted styles, will be shipped to any address upon receipt of \$5.

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Delivers bundles any desired size. The driver, in his seat, raises or lowers the platform, both sides alike, or tilts the bar to gather lodged grain. Draft light. Machine simple, strong, durable, and no other Reaper delivers the grain in so good order for binding.

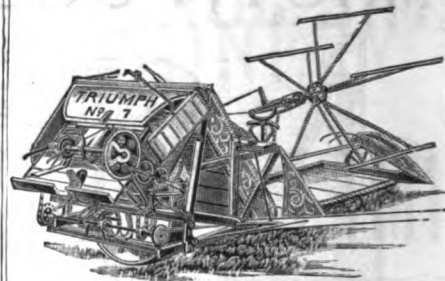
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D. S. MORGAN & CO.
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Send for Circular, and write for any desired Information.

THE TRIUMPH MOWER No. 4 has the best tilting apparatus, adjusts the bar to any desired height or pitch of guards, and is the Best Mower known to the trade.

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5½ Feet Cut, will fold so as to Pass Through a 10 Foot Gate or opening. Has the simplest and most adjustable reel, and it is the Strongest, Most Durable and Best Working Binder in the Market.

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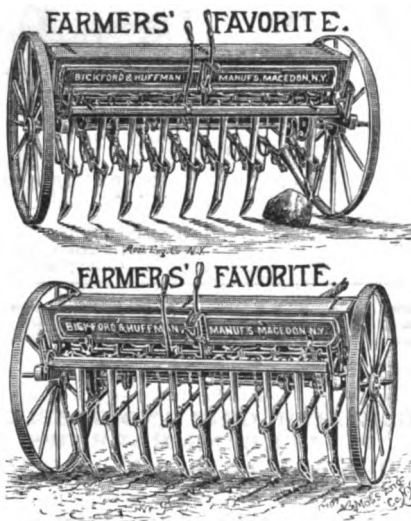
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FOR THE MAKING OF WHEAT FLOUR AND CORN MEAL.

FRENCH MILLSTONES,

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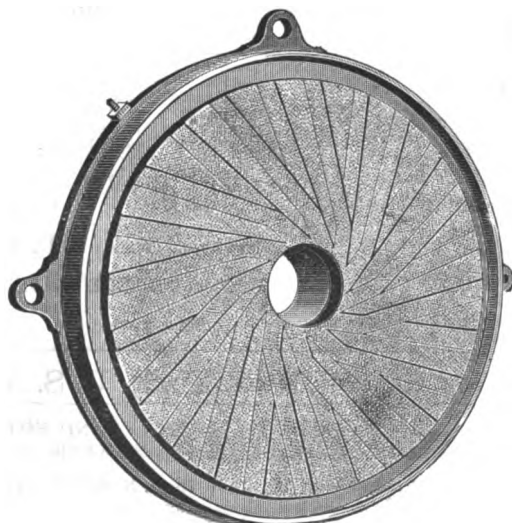
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Acabadas y equilibradas á máquina. Alimentadores Silenciosos, Telas Para Cernir, y toda clase de Accesorios para Molineros.

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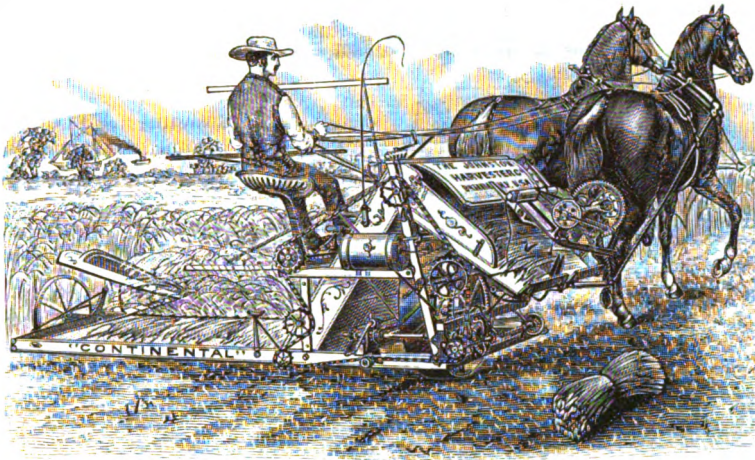
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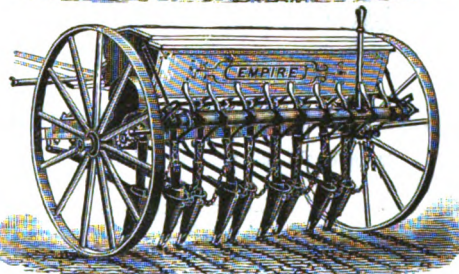
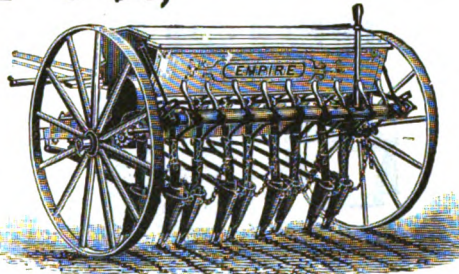
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El Cortador mejorado de velocidad variable,
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Unterricht über dem Weizenbanem umsonst gesandt zu denjenigen welche diese Zeitung erwahren.

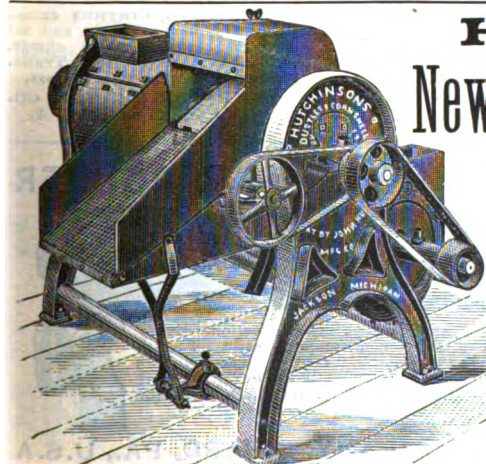
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Shelled Corn per hour; is dustless; shells absolutely clean; wastes no shelled corn. The bearings are cast solid into the frame and babbitted. The shelling surface is made entirely of wrought-iron.

Full length of machine, 5 ft.; height, 3 ft. 6 inches; motion of cylinder, 800 per minute; driving-pulley, 8 inches diameter by 6 inches face; weight, 650 pounds.

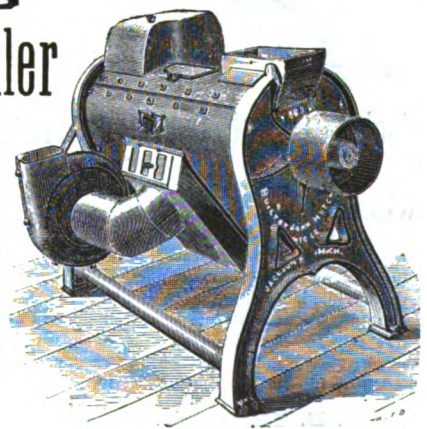
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52,932 sold in one month.



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And shuts the door by his own weight,
And then he jumps right through a hole,
And thinks he's out; but bless his soul,
He's in a cage, some how or other,
And sets the trap to catch another.

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Superior Elegance, Lightness and Durability. The Result of 50 Years' Experience.

Adapted to all Countries and Climates. Combining all Valuable Improvements. Shipped to Foreign Ports with greatest care and at Most Favorable Rates.

INDISPENSABLE TO EVERYONE OWNING
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**Cook's Patent Carriage Wrench.**

The above cut represents the best **CARRIAGE WRENCH** that has ever been placed on the market. The nut is firmly held in the wrench by a spring (instantly applied and released), thus preventing its falling to the ground, and also the hands from getting greasy while removing from or attaching to axle. It is strongly made of malleable iron, well finished and in three sizes, $\frac{3}{4}$ -in., 1-in., $1\frac{1}{4}$ -in. Merchants will find this a very salable wrench. Price per Gross, \$45.00. Liberal Discount to the trade.

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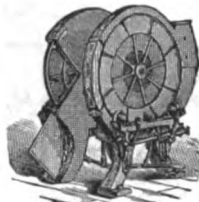
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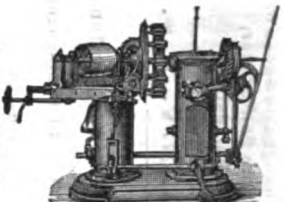


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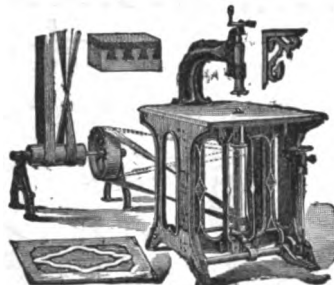
BARREL MACHINERY.

STAVE JOINTER.

Chamfering, Howeling and Crozing
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STAVE, BARREL, KEG, AND HOGSHEAD MACHINERY.**Paneling, Variety Moulding, and Dovetailing
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Cuts Panels of any design or style of
Mold in the solid wood, with neatness
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Simple, Durable, and Efficient.

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Improved Solid Steel Cutters

For all kinds Variety Moulders, made to
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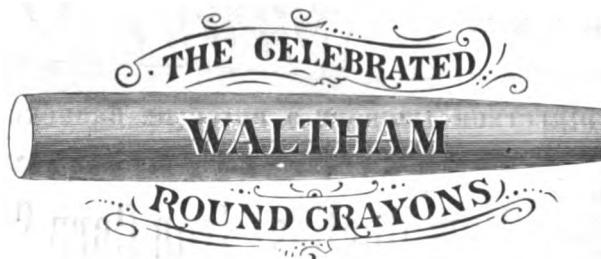
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Carpenters' Chalk and Tailors' Crayons.

Our NEW WHITE DUSTLESS ENAMELED CRAYON,
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Is universally acknowledged to be the best in market.



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SELLS rapidly against all competition, and always gives satisfaction. Every Roller has brass ferrule on each end, and is complete and ready for hanging before leaving works. The bearings are absolutely central. These Rollers will fit windows of any width without cutting, consequently are never too short or too long. **THE BEST SHADE-ROLLER IN THE WORLD.** Send for Descriptive Price-List.

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Improvements fully covered by Patents.

THE LATEST!

You get the Best
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PORTABLE
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**BLACKSMITH'S
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**Light, Compact,
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Manner of operating
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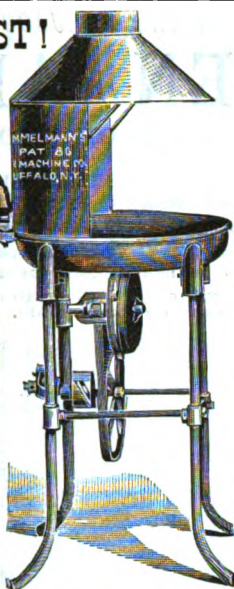
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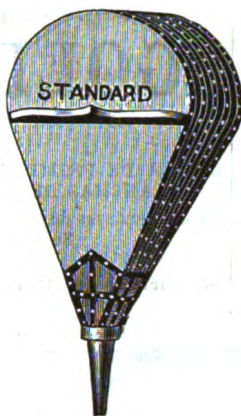
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PROPRIETOR.**



**THE T. H. BULLOCK
BELLOWS AND FORGE CO.,**

85 COLUMBUS ST., Cleveland, Ohio.

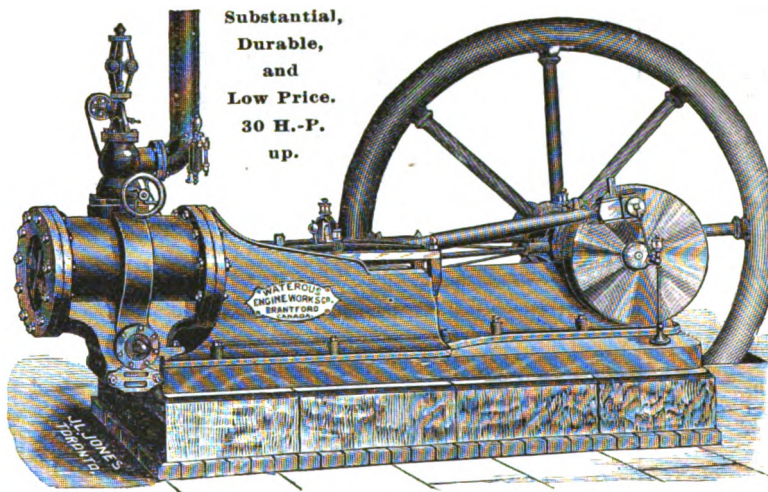
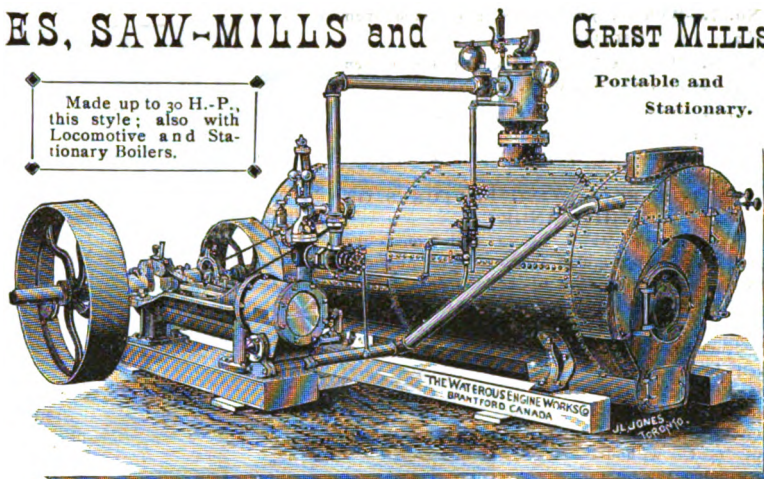


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Send for
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Made up to 30 H.-P.,
this style; also with
Locomotive and Sta-
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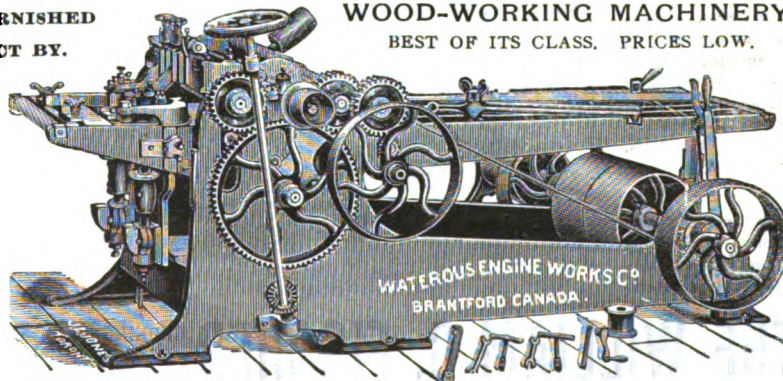
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Low Price.
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Our Machinery
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North, Central
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**PLANS FURNISHED
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Skilled Men
furnished
to operate our
Mills
at moderate
wages.

WOOD-WORKING MACHINERY.
BEST OF ITS CLASS. PRICES LOW.



WATEROUS ENGINE WORKS CO., Brantford, Canada.

"THE GOLDEN ANVIL"

Wrought-Steel Cooking Ranges.

A STRONG, FIRST-CLASS WROUGHT-HAMMERED
PLATE STEEL RANGE.

All of the Latest Improvements.

Perfect Construction.

Best Materials.

Manufactured in 288 varieties. Made specially for the various kinds of fuels.

No. 7.—With six 7-inch holes, 18×18 inch oven and 21×18 inch warming oven.

No. 8.—With six 8-inch holes, 21×20 inch oven and 24×20 inch warming oven.

No. 9.—With six 9-inch holes, 25×23 inch oven and 28×23 inch warming oven.

Also made in "Double-Oven" sizes.

NOTE THE FOLLOWING FEATURES OF
THIS RANGE:

Extra heavy water heater and connecting pipes. Patent triangular three-surfaced dumping and shaking grate, easy of action, durable and cleanly. Patent drop-pouch, chute-feed door, double-lined and ventilated. New fire-lining of novel construction. Drop oven door with automatic gravity latch. Skeleton bracketed shelf, strong and neat, without obstructing the light from top cooking surface. Oven extra braced to prevent warping. All corners made of angle iron, giving extra strength and perfect finish. New rolling direct draft-damper. Steel polished edges, nickel fittings, black japanned, &c.

Perfect in Construction.
Reliable and Durable.

Our extensive line of "Grand Active" Cooking Apparatus embrace a variety from the smallest to the largest, suitable for the kitchens of Private Dwellings, Boarding-Houses, Restaurants, Hotels, Public and Private Institutions, Boarding-Schools, Colleges, Universities, Academies, Seminaries, Convents, Hospitals, Asylums, &c.

Send for Descriptive Illustrations of these famous goods to the manufacturers,

COCINAS DE ACERO FORJADO MODELO

"GOLDEN ANVIL"

(YUNQUE DE ORO).

COCINA DE PRIMERA CALIDAD Y GRAN RESISTENCIA HECHA DE
PLANCHAS DE ACERO LABRADO BATIDAS AL MARTILLO.

Están provistas de todos los perfeccionamientos más recientes.

Su construcción es absolutamente perfecta.

Se han empleado los mejores materiales.

Se fabrican de ellas 288 variedades, especialmente para las varias especies de combustible.

No. 7.—Tiene seis agujeros de 7 pulgadas, horno que mide 18×18 pulgadas y horno calentador 21×18.

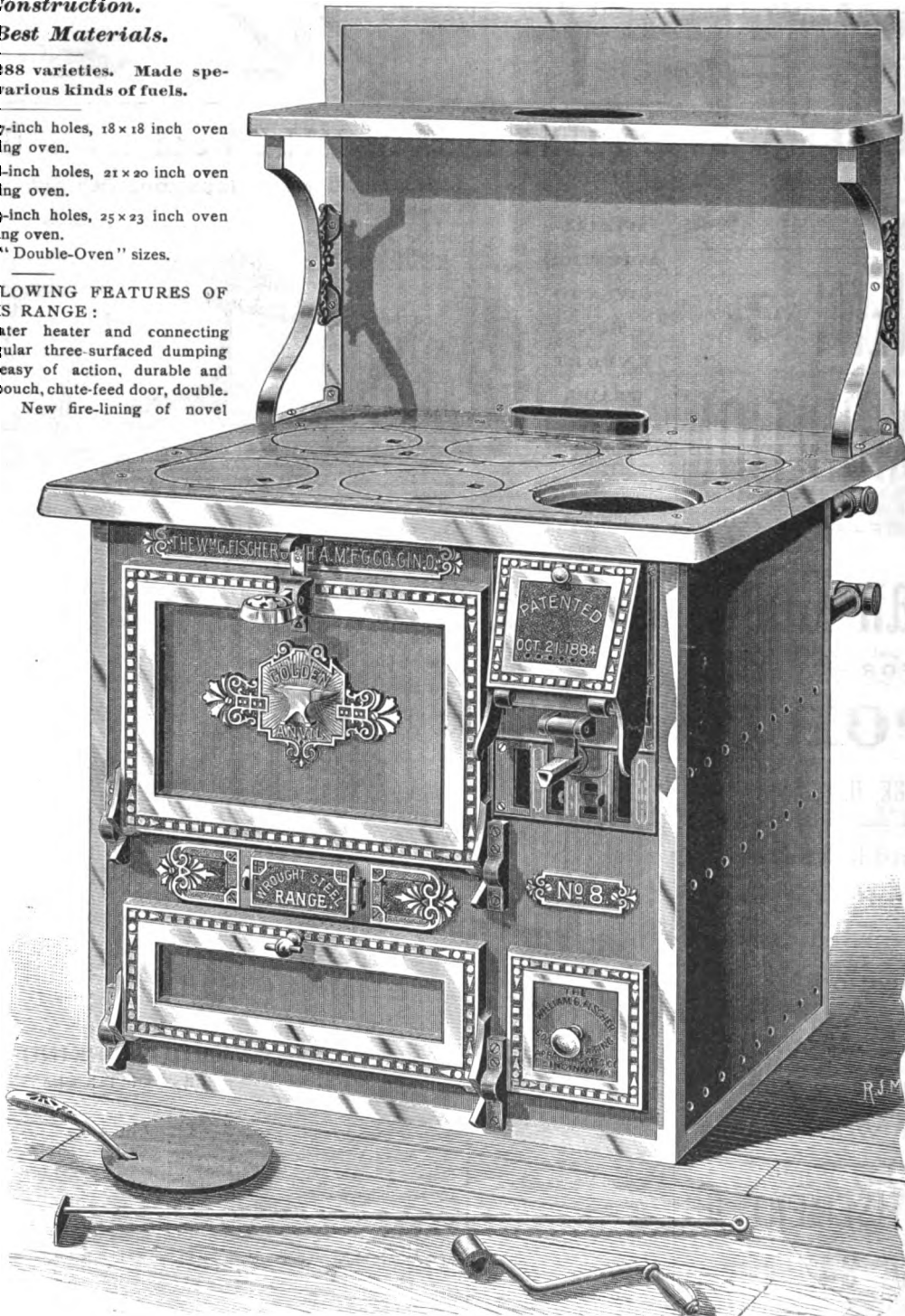
No. 8.—Con seis agujeros de 8 pulgadas, horno 21×20, idem calentador 24×20.

No. 9.—Con seis agujeros de 9 pulgadas, horno 25×23, idem calentador 28×23. Se fabrican también tamaños de "doble horno."

Nótese las siguientes particularidades que distinguen esta cocina: Calentador de agua y tubería de alimentación de resistencia excepcional. Parrilla triangular, barras de volteo y movimiento, de patente, con tres superficies. Funciona con la mayor facilidad, es duradera y limpia. Horno móvil de patente, puerta de alimentación forrada doble y ventilada. Revestimiento de construcción enteramente nueva. Puerta de horno movible con pestillo de gravedad automático. Repisa reforzada, sólida y bien construida que no excluye la luz de la superficie de cocer. El Horno reforzado lo está bastante para impedir el alabeo. Todas las esquinas hechas de hierro angular, con lo que se logra gran resistencia, y un primoroso acabado. Registro regulador giratorio directo de construcción nueva. Cantos de acero pulido, guarniciones plateadas con doble baño de nickel, charoladas negras, &c.

Es perfecta en su construcción. De toda confianza y duradera. La gran variedad de baterías de cocina modelo "Grand Active" que fabricamos abraza las de tamaño menor así como las más grandes, propias no solo para el uso doméstico, sino para el de casas de huéspedes, restaurantes, hoteles, Instituciones públicas y privadas, pupilajes, colegios, universidades, academias, seminarios, conventos, hospitales, asilos, &c.

Se enviarán ilustraciones descriptivas de esas renombradas cocinas a los que las pidan. Dirijirse a la compañía fabril



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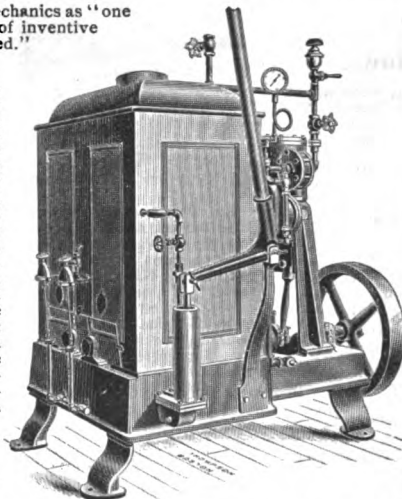
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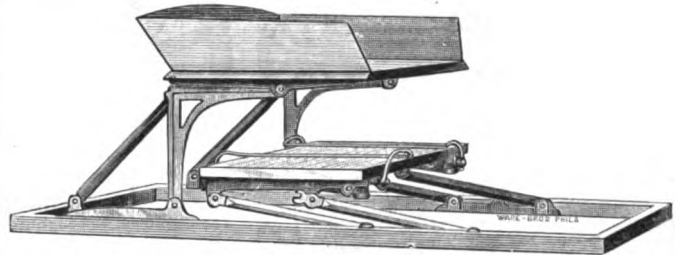
SU combustible es el petróleo. No necesita ni maquinista ni fogonero. Se abastece automáticamente de combustible y agua. Alimenta de combustible al hogar para tal abastecimiento luego que el combustible llegue a cierta altura, renovándolo después de bajar el vapor hasta un punto determinado. Hace funcionar y parar automáticamente la bomba al bajar el agua debajo del nivel necesario y asimismo al subir sobre él. El propietario de la máquina puede ser su propio maquinista. No hay absolutamente ningún peligro de explosión. Todo lo que hay que hacer es echarle petróleo y agua cuando funcionará automáticamente. Los tamaños que se hacen de ella son de 1½, 3 y 5 caballos, tanto para las extacionarias como marítimas. La usan los hacendados, carpinteros, maquinistas, fabricantes, los que la emplean para el bombeo, para producir luz eléctrica, así como para yates de vapor, &c., &c. Se enviará a solicitud el catálogo ilustrado.

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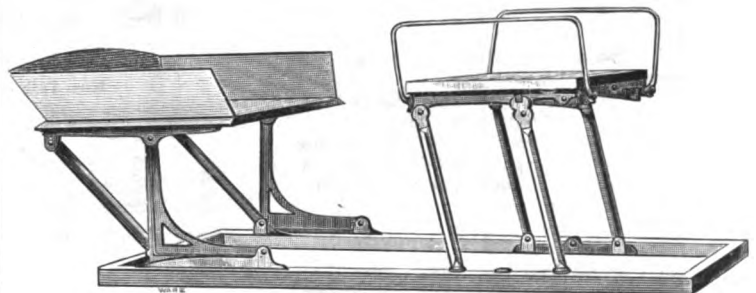
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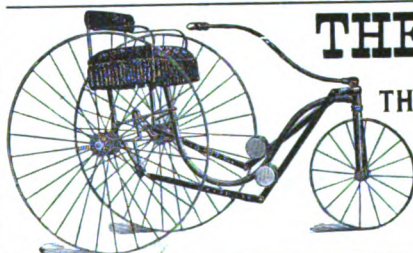
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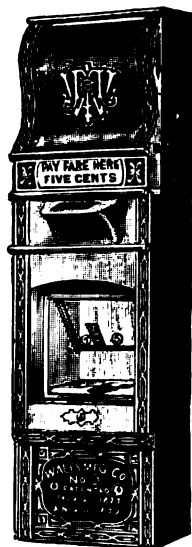
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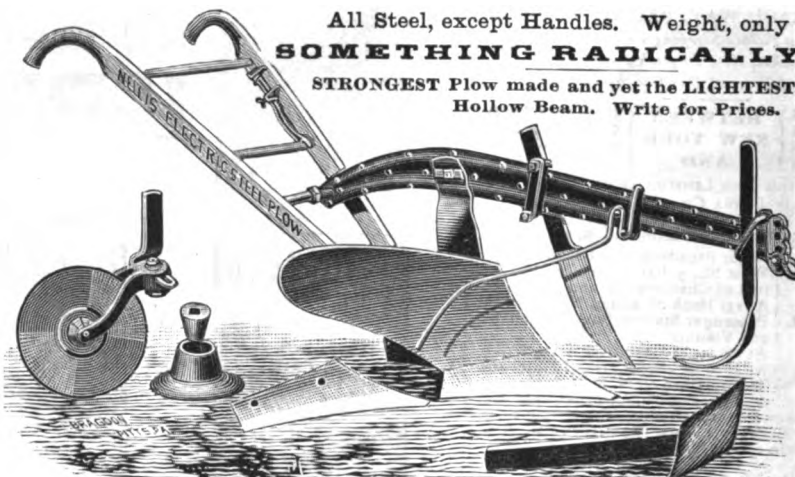
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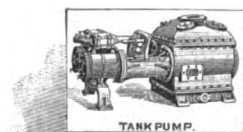
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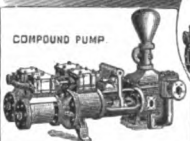
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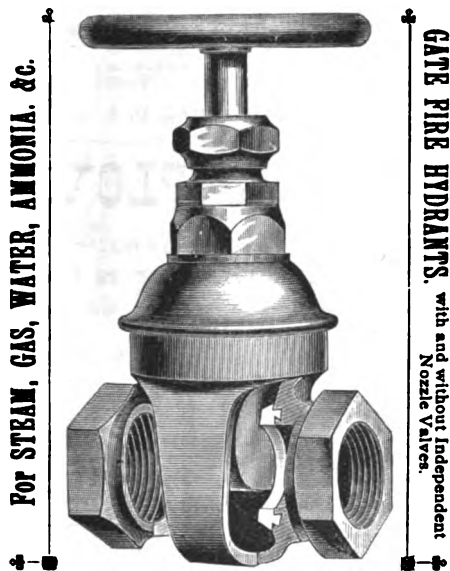
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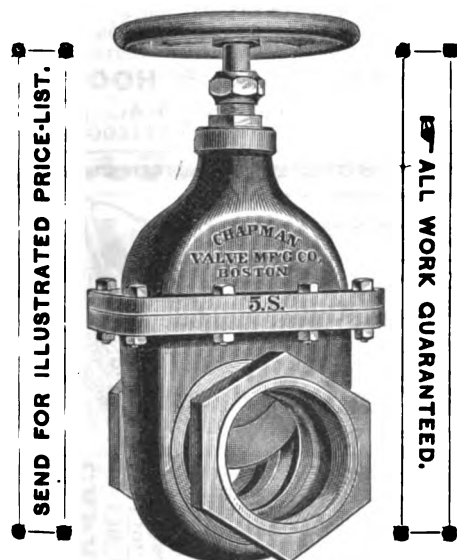
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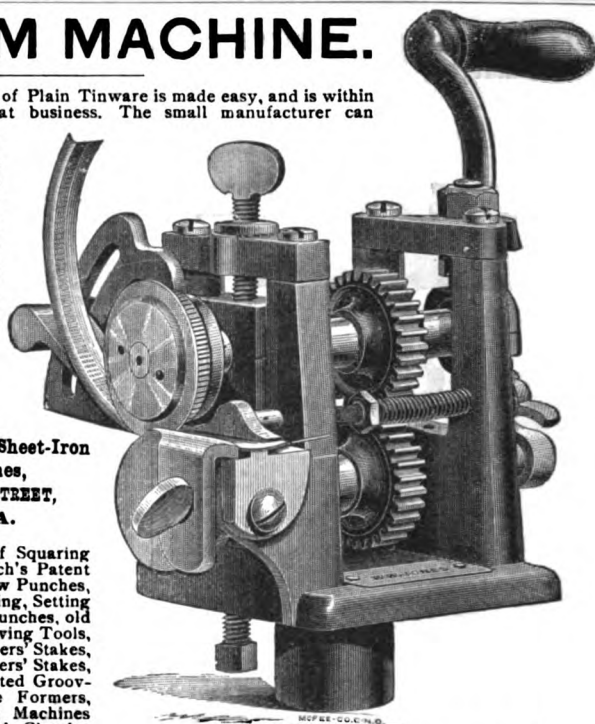
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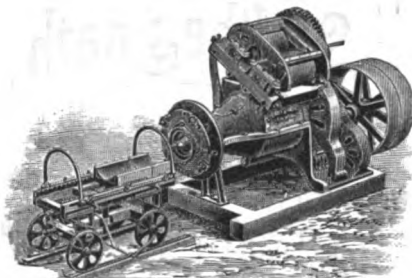
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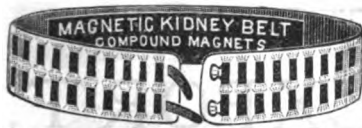
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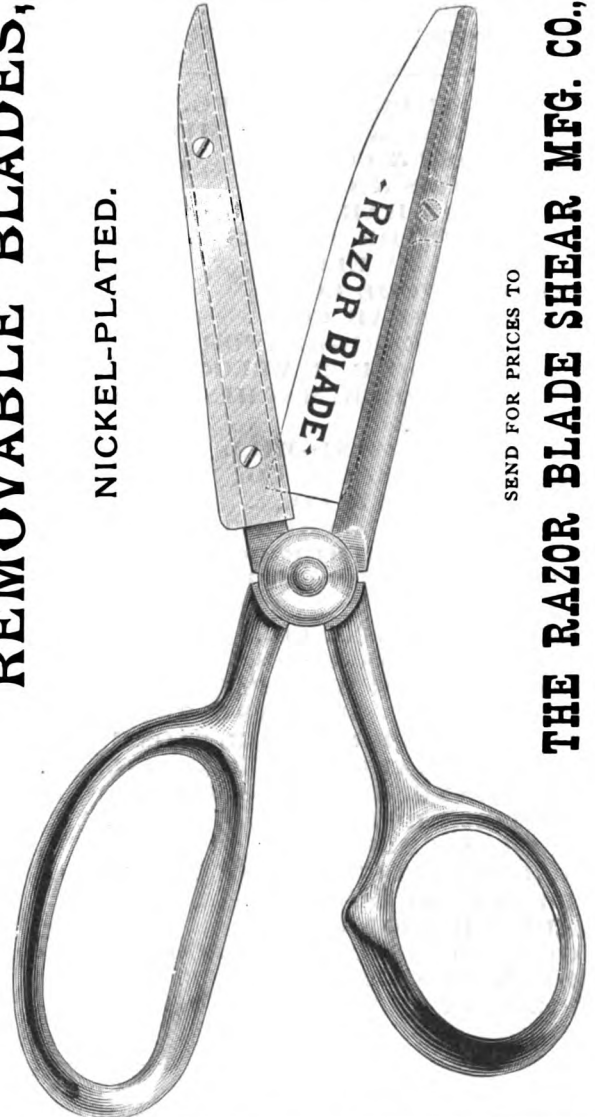
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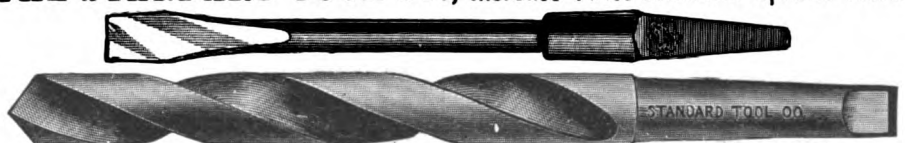
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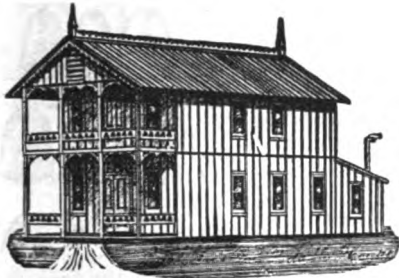
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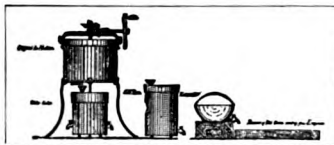
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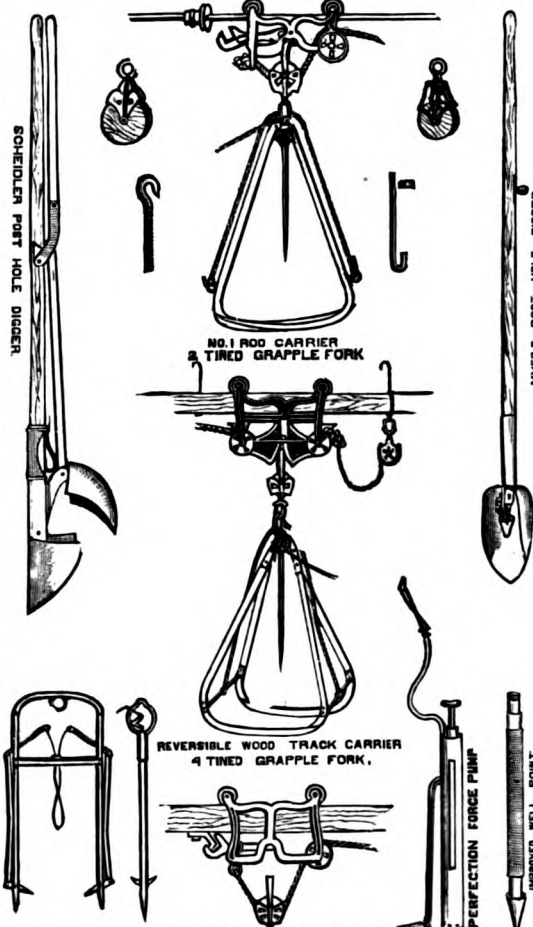
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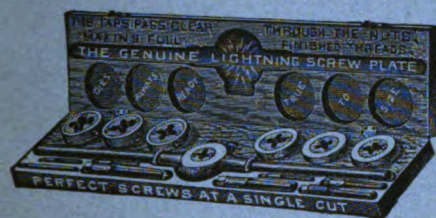
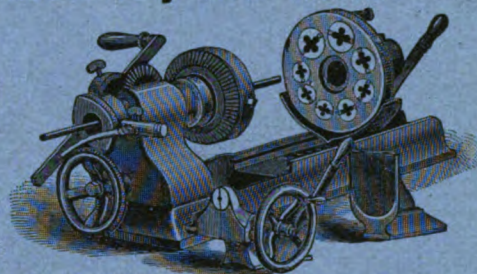
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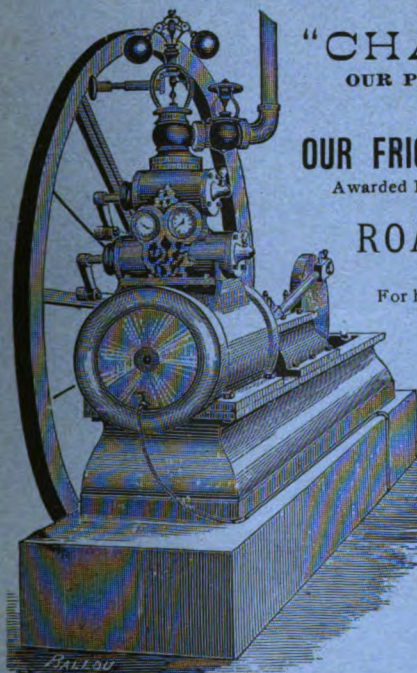
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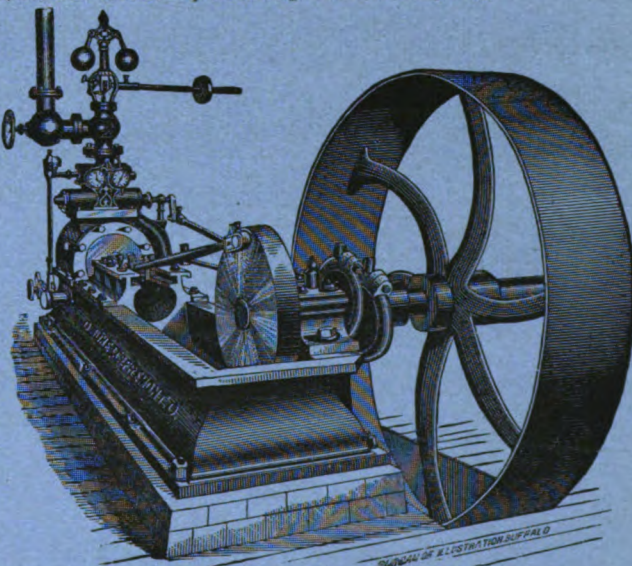
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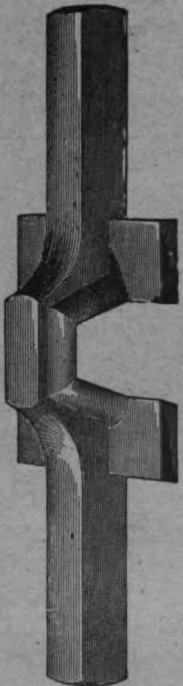
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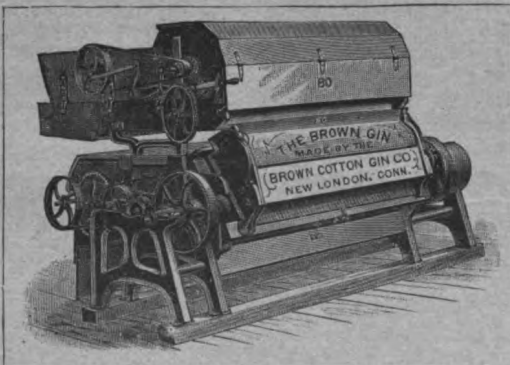
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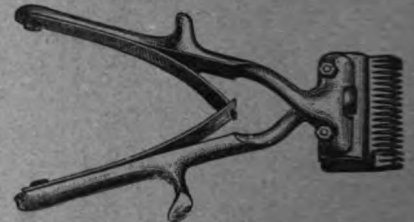
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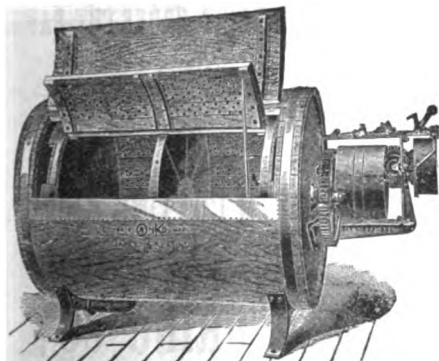
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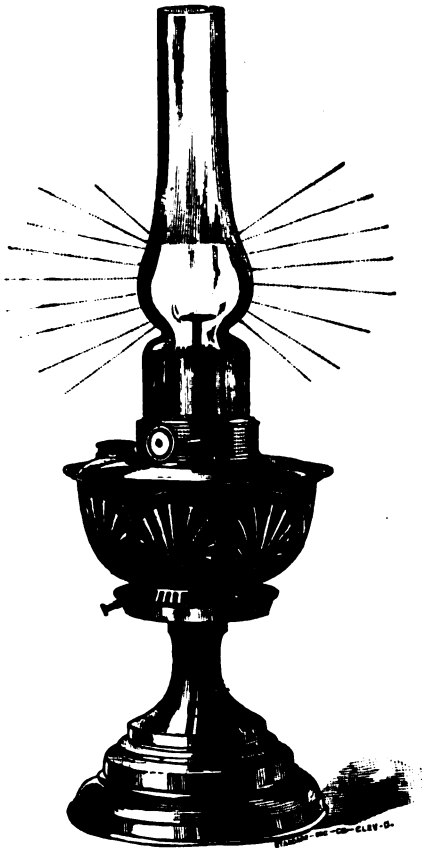
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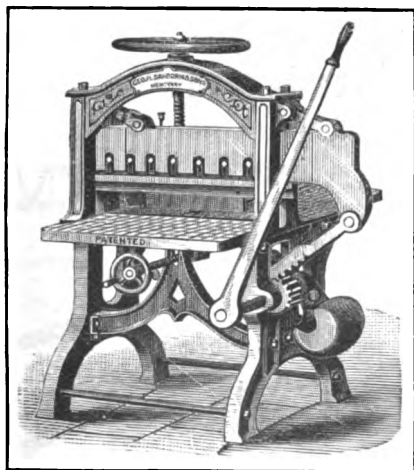
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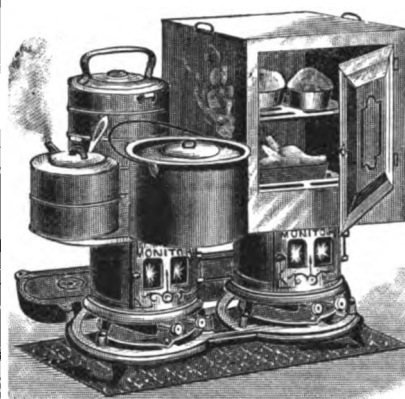


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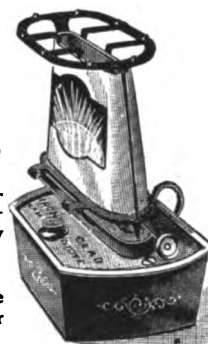
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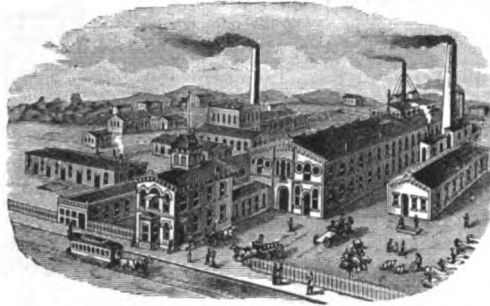
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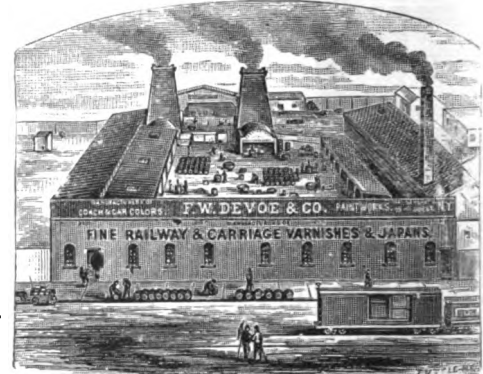
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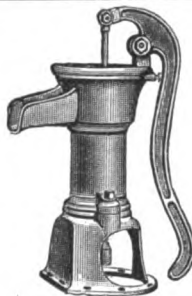
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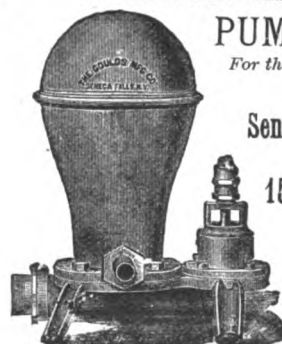
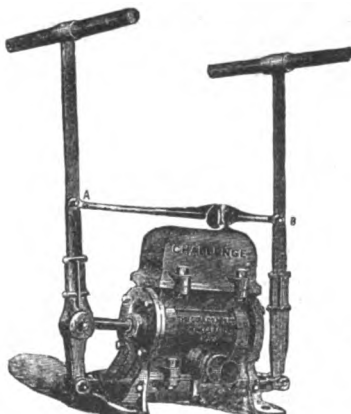
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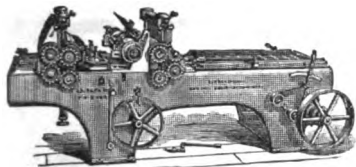
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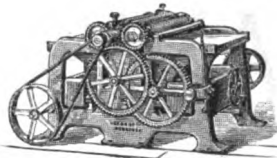
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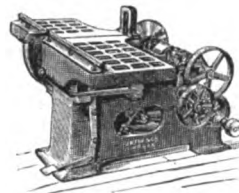
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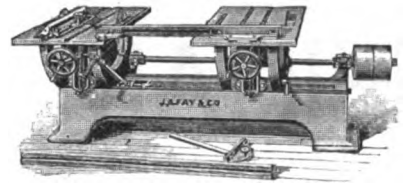
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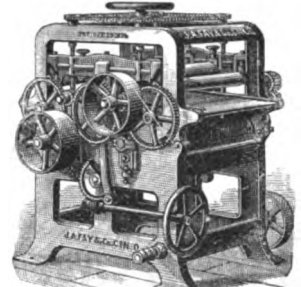
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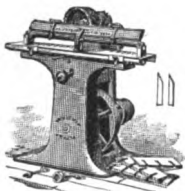
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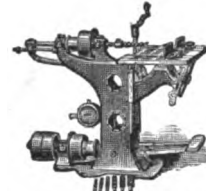
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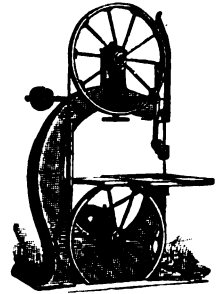
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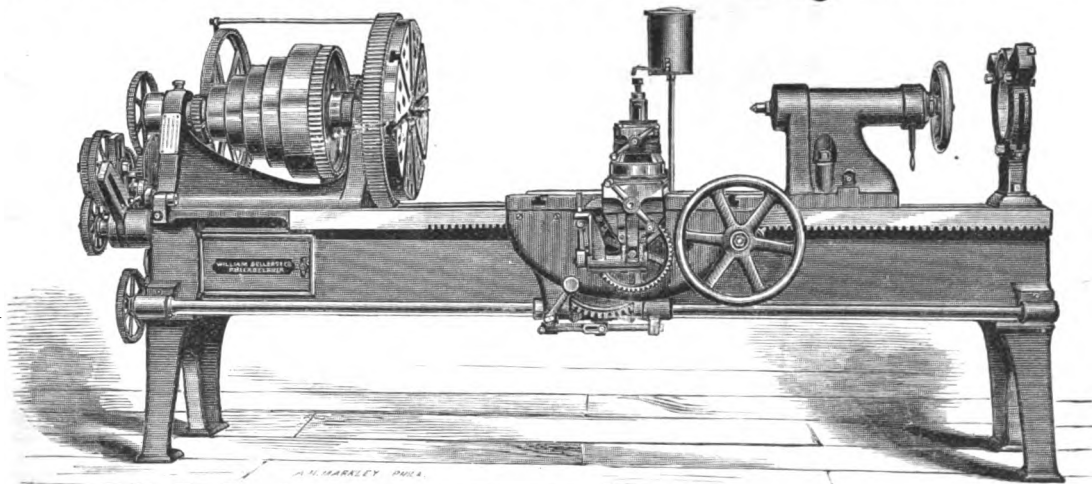


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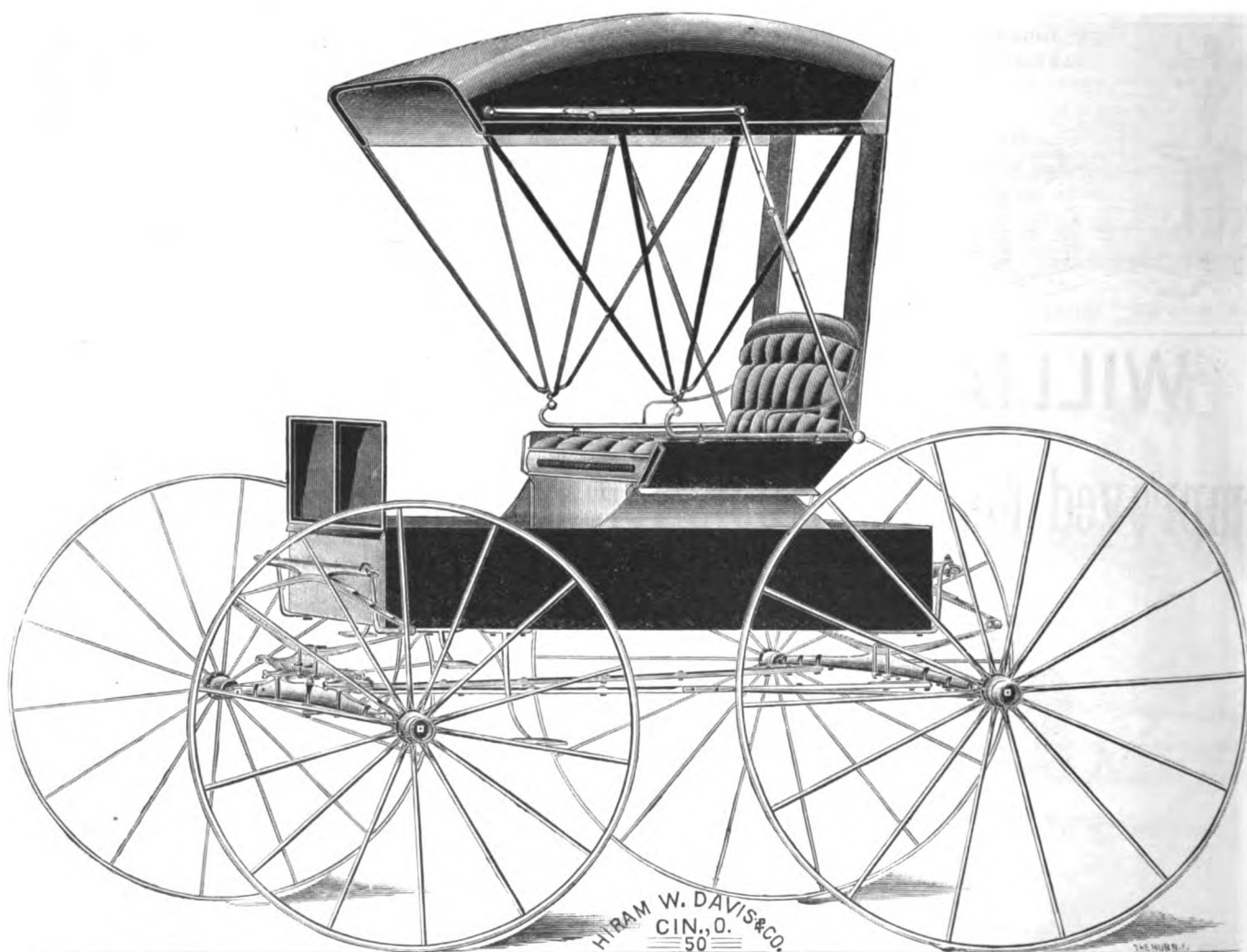
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TWO-WHEELER.

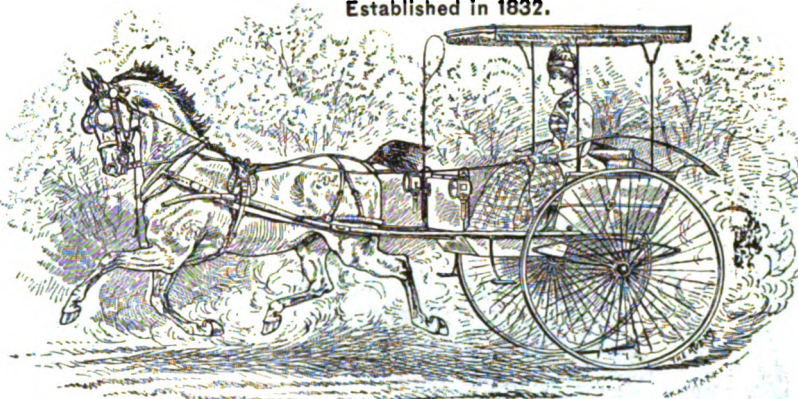
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Established in 1832.



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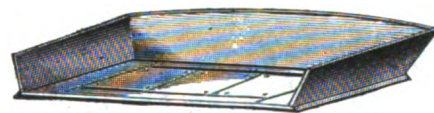
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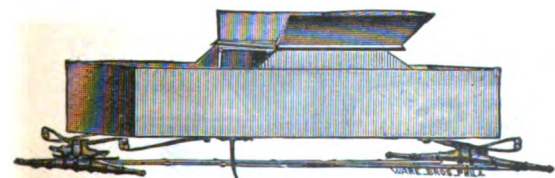
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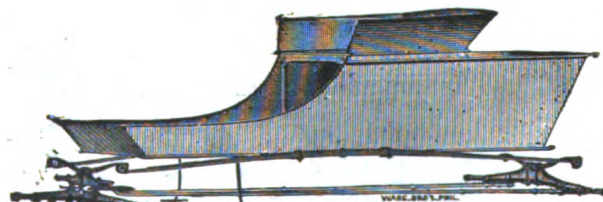
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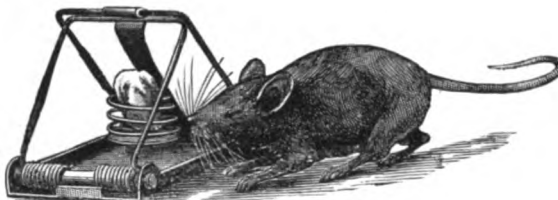
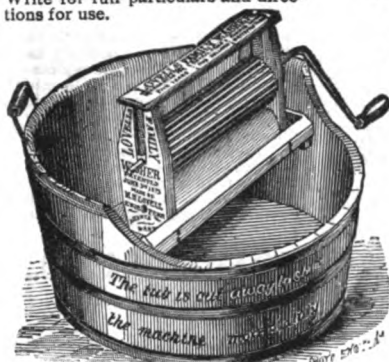
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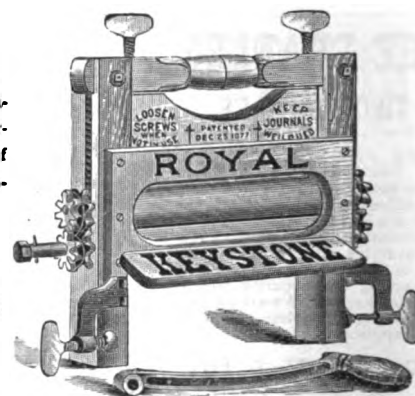
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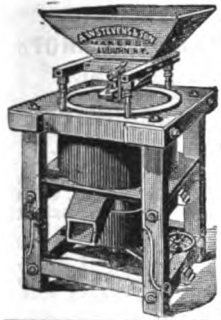
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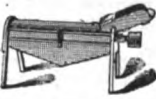
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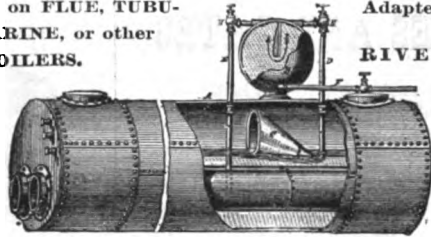
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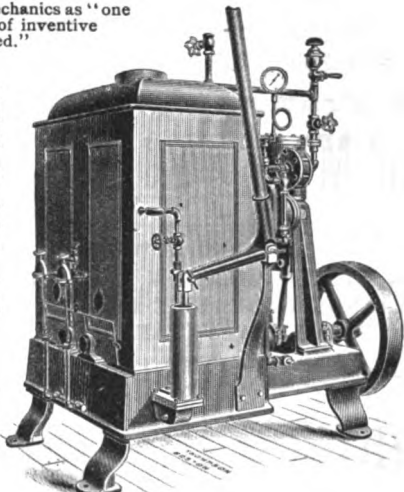
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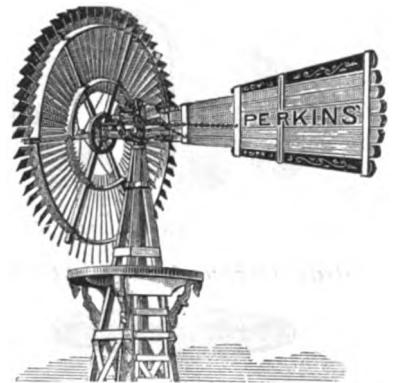
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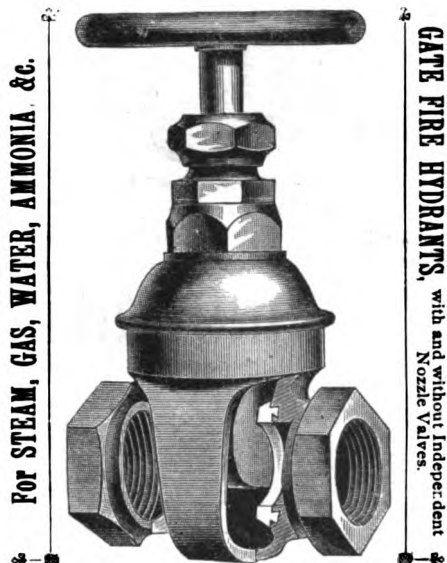
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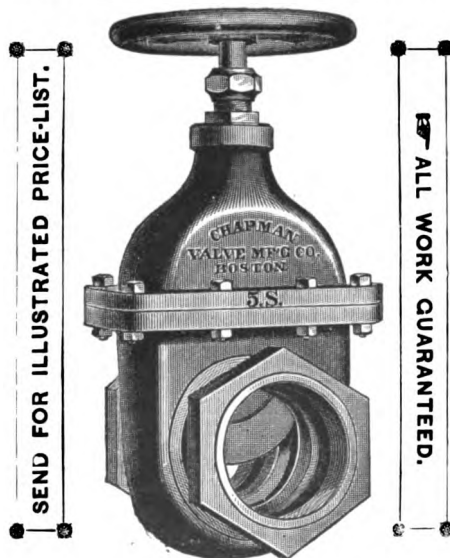
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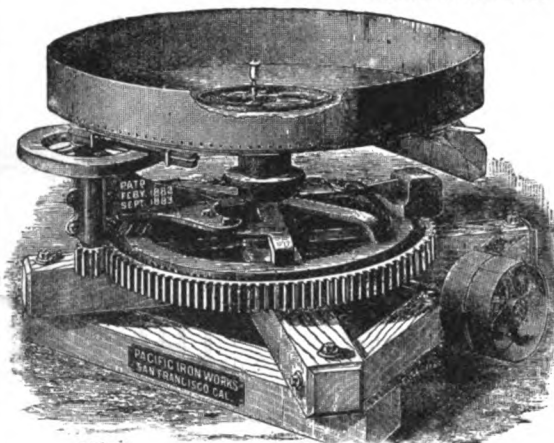
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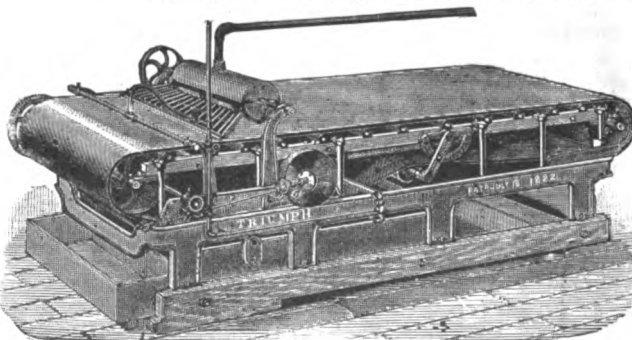
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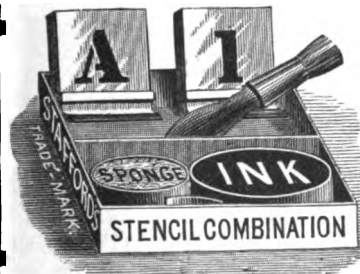
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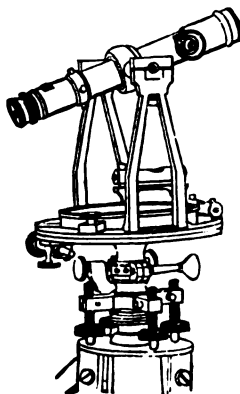
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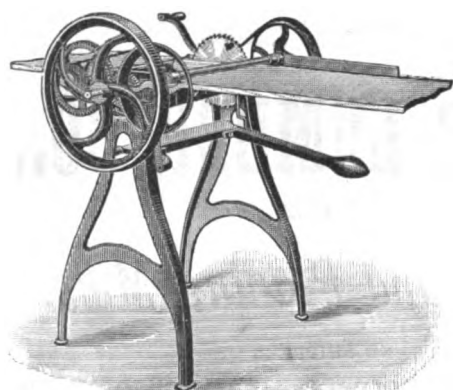
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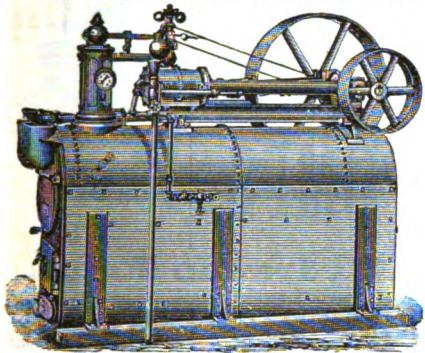
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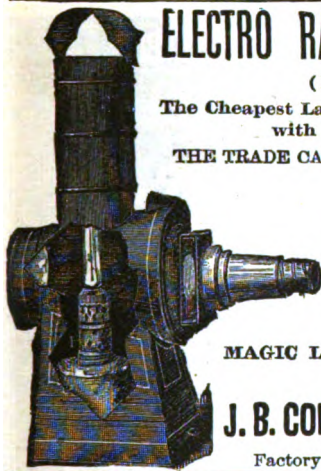
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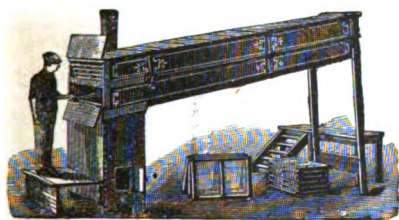
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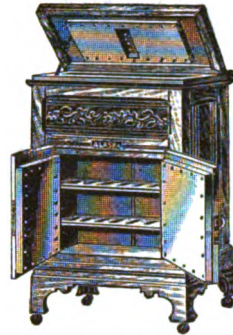
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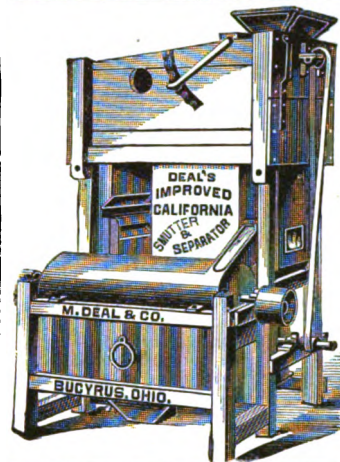
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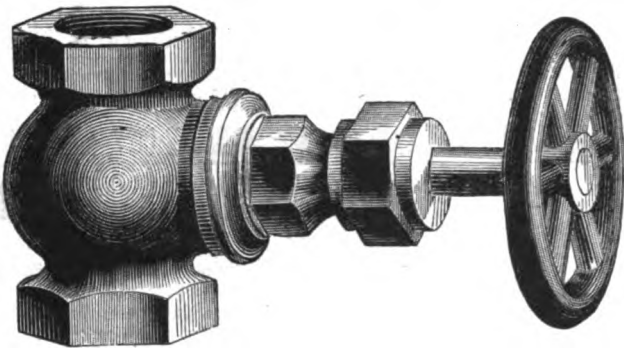


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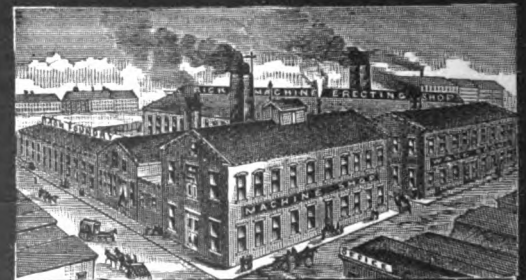
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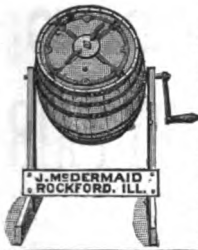
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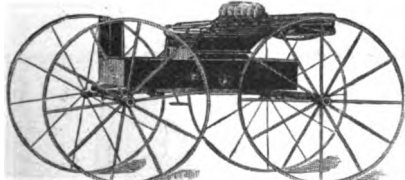
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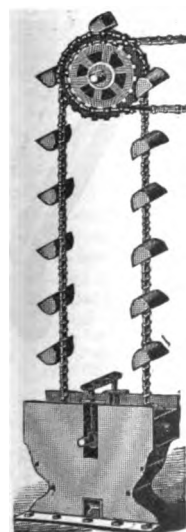
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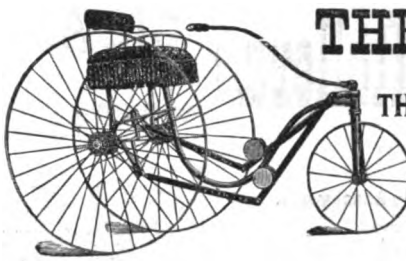


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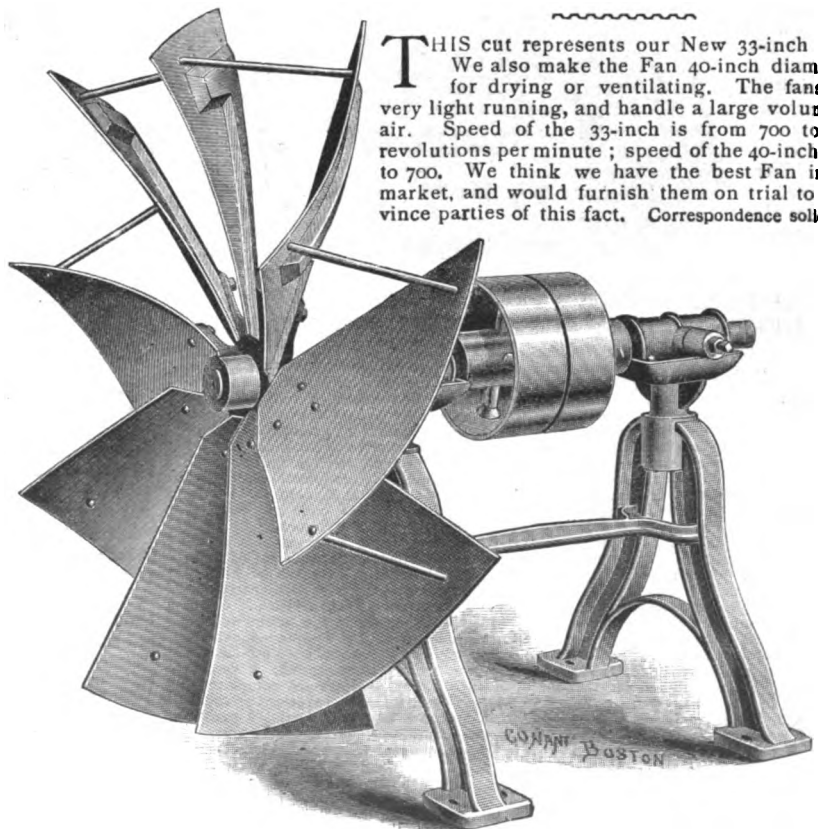
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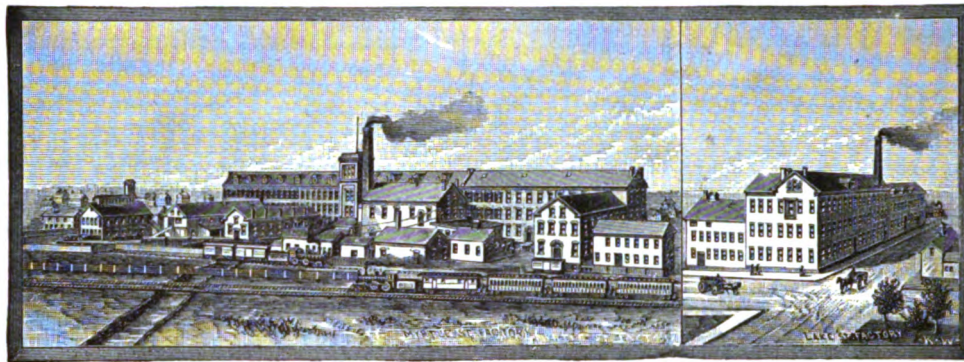
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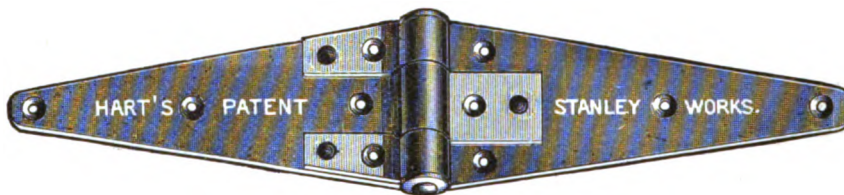
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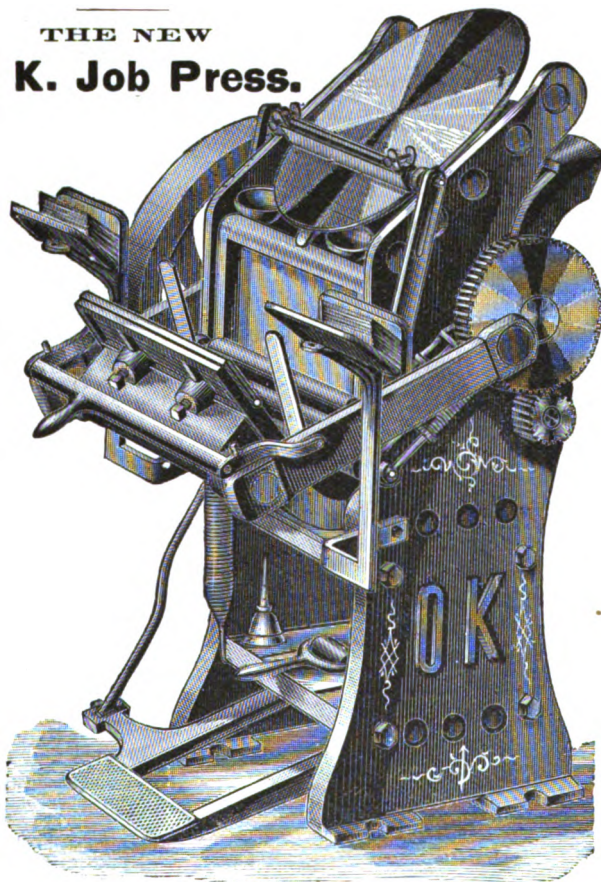
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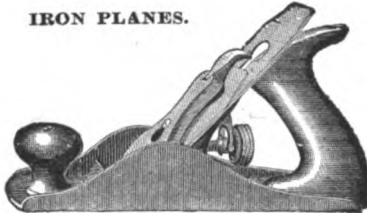
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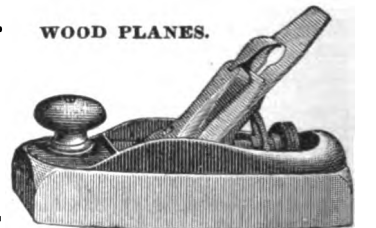
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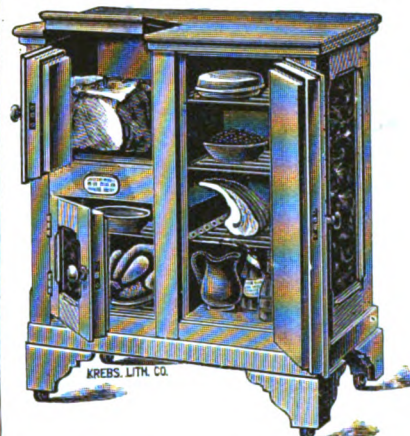
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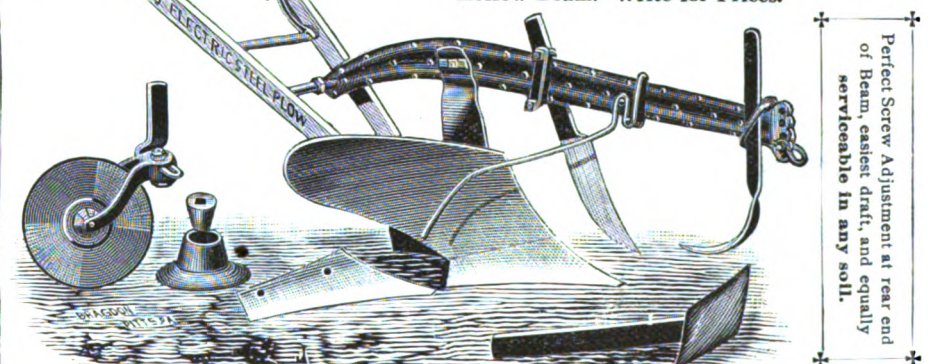
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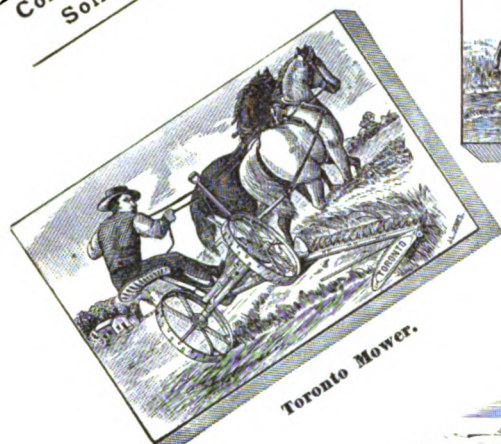
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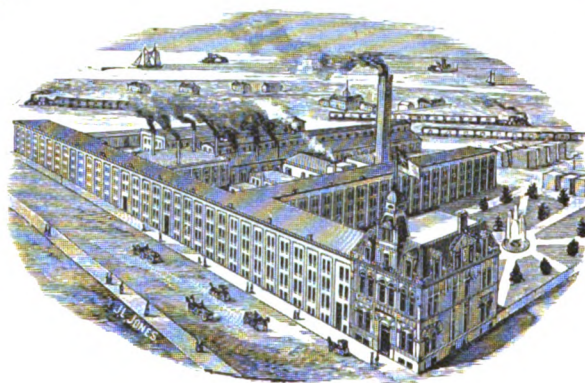
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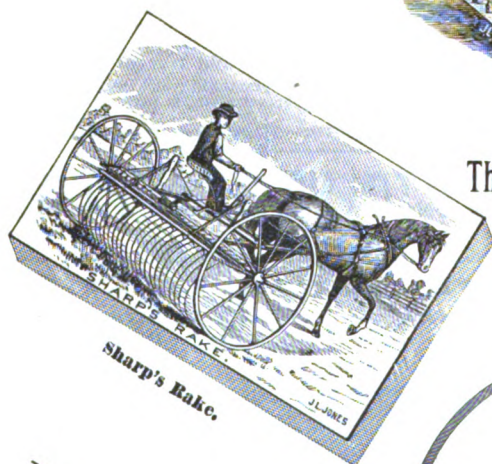
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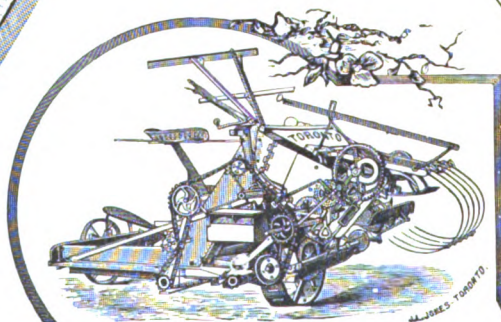
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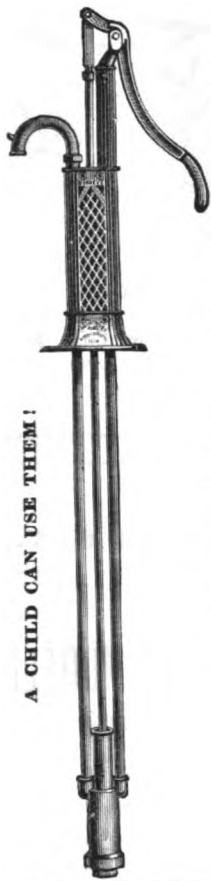


Massey Harvester.

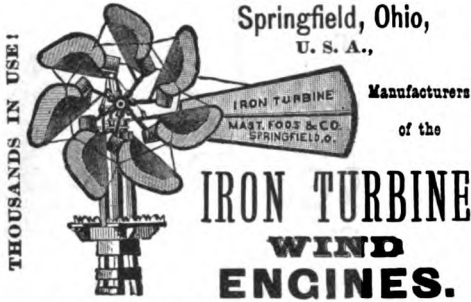
Experience
38 Years.

The Massey Manufacturing Co. - - Toronto, Ontario, Canada.

MAST, FOOS & CO. P.P. MAST & CO., Springfield, Ohio, U. S. A.



A CHILD CAN USE THEM!



THOUSANDS IN USE!

Springfield, Ohio,
U. S. A.,

Manufacturers
of the

IRON TURBINE WIND ENGINES.

Strong and Durable, will not Swell, Shrink,
Warp or Rattle in the Wind.

BUCKEYE FORCE PUMP

Works easy and throws a constant stream. Has Porcelain-lined and Brass Cylinders. Is easily set. Is the Cheapest and Best Force Pump in the World for Deep or Shallow Wells. Over 100,000 in use. Never freezes in winter. Send for circulars and prices, giving depth of well.

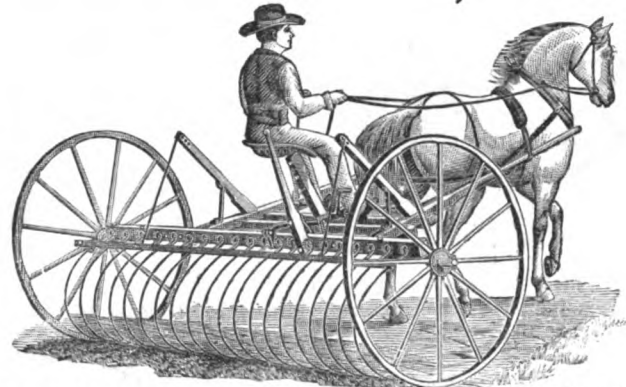
BUCKEYE JUNIOR LAWN MOWER.

Made in 10, 12, 14 and 16 in. cut.

Strong, Durable!
Lightest Running!



FAR
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ALL
OTHER
MACHINES
MADE.



No Ratchets or Cog Wheels to get out of order. Practically a Self-Dump Rake. High Wheels with tires bolted on. Teeth long and adjustable. Made of Crucible Steel, Oil Tempered. Has Lock-Lever and Swinging Cleaner Bar. Made of the best material; neatly finished. We make both Coil and Drop Tooth. See it and you will appreciate it.



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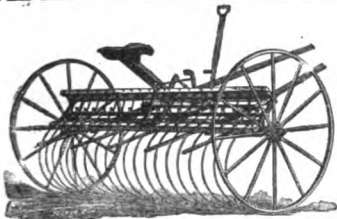
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Changes Quantity without change of gears.
More in use than any other Drill in the world.
Be sure and buy the Buckeye if you want the best.
Who can afford to do without one?

— MANUFACTURED BY —

P. P. MAST & CO., Springfield, Ohio, U. S. A.

Also Manufacturers of Buckeye Broadcast Seeders, Riding and Walking Cultivators, Spring-Tooth Cultivators, Five Shovel or Horse-Hoe Cultivators, Double Shovel Plows, Cider Mills, Lard Presses, &c.



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THE OHIO RAKE CO.

DAYTON, OHIO, U. S. A.,

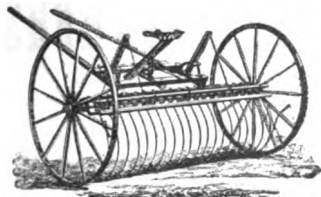
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HOLLINGSWORTH, OHIO AND GAZELLE RAKES,
PULVERIZING HARROWS,
HAND CORN SHELLERS, BINDER TRUCKS, &c.

We guarantee goods to be as represented. Send for Illustrated Price-Lists.
Correspondence Solicited. Cable Address: Orake, Dayton, Ohio.



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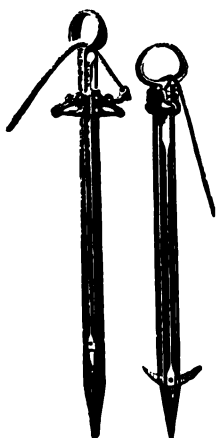
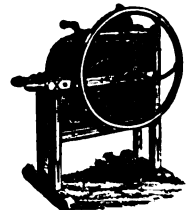


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CORN SHELLERS, FEED CUTTERS, WHEAT DRILLS, CORN DRILLS,
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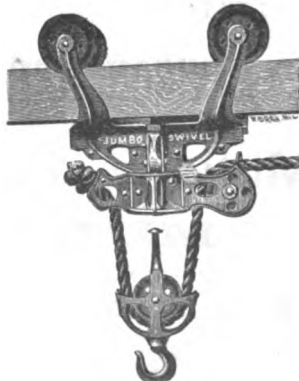


WE MANUFACTURE A FULL
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Haying Machinery

FOR THE PURPOSE OF
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Or Stacking in the Field.

We use the best material, and
our goods are fully tested.



For an illustrated circular, showing
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Delivers bundles any desired size. The driver, in his seat, raises or lowers the platform, both sides alike, or tilts the bar to gather lodged grain. Draft light. Machine simple, strong, durable, and no other Reaper delivers the grain in so good order for binding.

**Triumph Binder,
Triumph Reaper,
Triumph Mower,**

MANUFACTURED BY

D. S. MORGAN & CO.

BROCKPORT, N.Y., U.S.A.

ESTABLISHED 1845.

Send for Circular, and write for any desired Information.

THE TRIUMPH MOWER No. 4 has the best tilting apparatus, adjusts the bar to any desired height or pitch of guards, and is the Best Mower known to the trade.

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5½ Feet Cut, will fold so as to Pass Through a 10 Foot Gate or opening. Has the simplest and most adjustable reel, and it is the Strongest, Most Durable and Best Working Binder in the Market.

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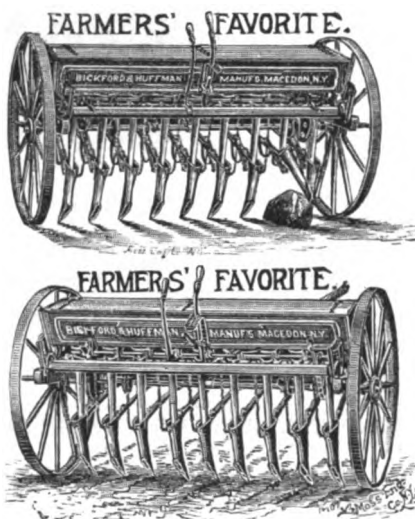
The Farmer's Favorite Grain Drills.

The Original Double Distributor, Force-Feed, Plain and Fertilizer Drills.

NEW PATENTED SPEED DEVICE for Changing Quantities. **POSITIVE COG GEAR**, without Loose Geared Wheels. **DOUBLE-CORD GRASS-SEEDER**. **STEEL AXLES**. **GEARLESS, INDEPENDENT, RATCHETED, RUNNING WHEELS**. **BROAD TIRE**. **DOUBLE REVERSIBLE POLISHED STEEL POINTS**.

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Semoirs simples et d'engrais avec distributeur original double et régulateur intermittent.

Mécanisme de vitesse nouveau breveté pour changer les quantités. Engrenage positif, sans roues folles. Semoir de graine d'herbe à corde double. Essieux d'acier. Roues d'enlèvement tournant indépendamment. Bandage large. Pointes d'acier poli doubles réversibles.

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Proprietors and Manufacturers.

FOR THE MAKING OF WHEAT FLOUR AND CORN MEAL.**FRENCH MILLSTONES,**

Finished and poled to correspond to the machine. Noiseless Feeding Apparatus, Bolting-Cloth, and all sorts of accessories for Millers' use, at Moderate Prices.

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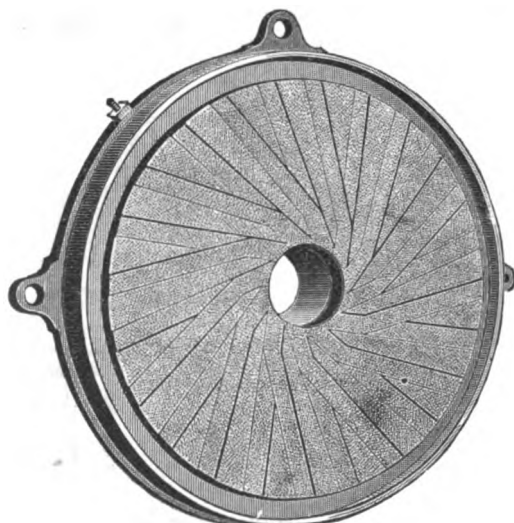
PROPIETARIOS Y FABRICANTES DE LOS

Molinos Portátiles**"MUNSON,"**

Para moler harinas de trigo y maíz,

PIEDRAS FRANCESAS PARA MOLINOS,

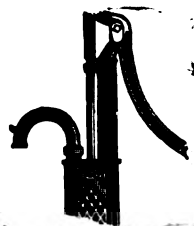
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— SOLE PROPRIETORS OF THEIR —



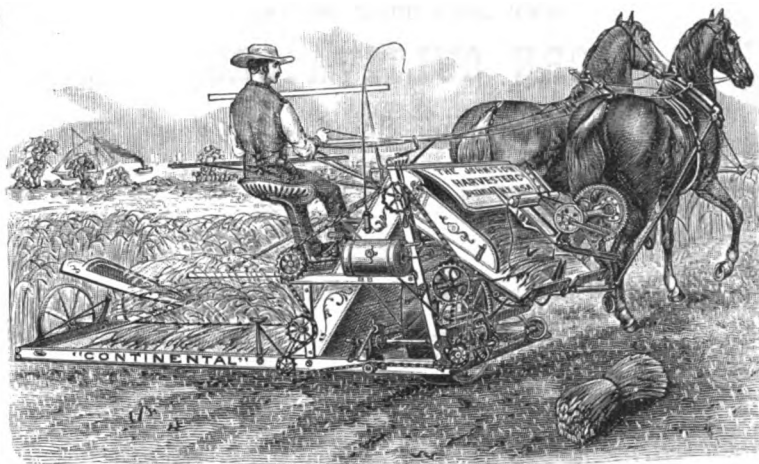
IMPROVED HARVESTING MACHINES.

The Improved Changeable Speed Mower,
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MADE ONLY AT THEIR FACTORY AT
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MÁQUINAS DE CORTAR PASTORA MEJORADAS.
El Cortador mejorado de velocidad triple,
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El cortador de hierro dulce,
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How to RAISE WHEAT—Free to all who mention this Paper.

À ÉPANDRE LES ENGRAIS.
ESTABLISHED 30 YEARS.

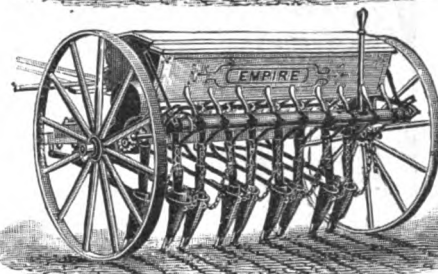
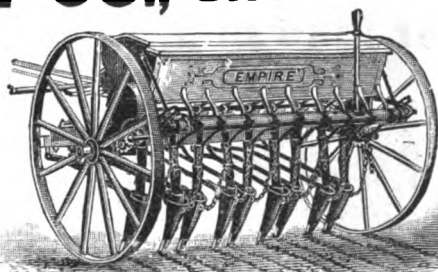
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Haus etablirt vor 30 Jahren.

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Unterricht über dem Weizenbanem umsonst gesandt zu denjenigen welche diese Zeitung erwahren.

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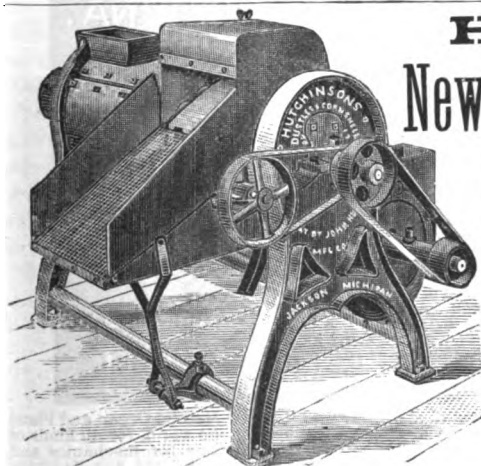
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CASA FUNDADA HACE 30 AÑOS.

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SHELLS EIGHTY TO ONE HUNDRED BUSHELS
Shelled Corn per hour; is dustless; shells absolutely clean; wastes no shelled corn. The bearings are cast solid into the frame and babbitted. The shelling surface is made entirely of wrought-iron.

Full length of machine, 5 ft.; height, 3 ft. 6 inches; motion of cylinder, 800 per minute; driving-pulley, 8 inches diameter by 6 inches face; weight, 650 pounds.

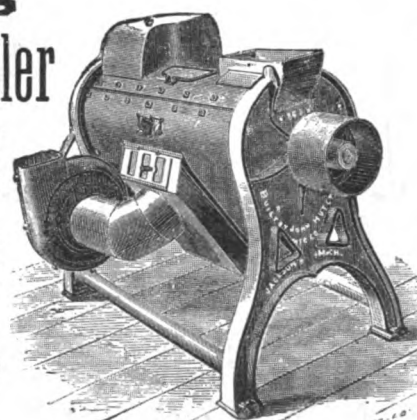
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JOHN HUTCHINSON MFG. CO.,

222 & 224 Francis Street;

124, 126, 128, 130 & 132 Washington St.,

JACKSON, MICH., U. S. A.



FRONT VIEW.

D. C. & H. C. REED & CO.,**One-Horse Spring Tooth Cultivator.****Spring Tooth Broadcast Seeder.****KALAMAZOO, MICH., U. S. A.,**

MANUFACTURERS OF THE

ORIGINAL**Spring Tooth Harrows,****ONE AND TWO HORSE****CORN CULTIVATORS,****Sulky Harrow and Broadcast Seeder.**

OUR GOODS ARE NOW BEING USED
SUCCESSFULLY IN AUSTRALIA, SOUTH
AMERICA AND RUSSIA.

SPECIAL ATTENTION GIVEN TO EXPORT ORDERS.**Correspondence Solicited.****Spring Tooth Corn and Fallow Cultivator.****The Original Spring Tooth Harrow.**

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ESTRADAS DE FERRO,

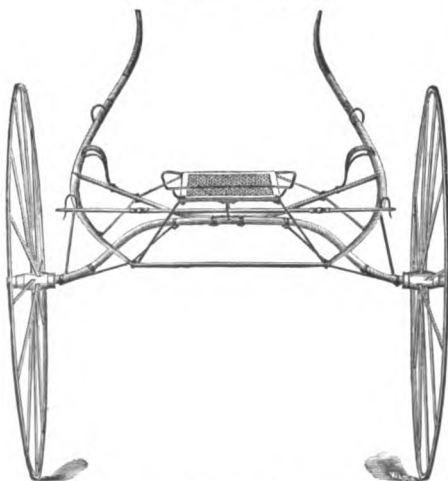
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**McMURRAY & FISHER
SULKY.**

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PRICES VERY LOW.

FOR EXPORT WE WILL SELL THESE
Sulkies, all finished except painting, taken apart
and packed close, making freights and customs duties
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and painted when they get them.

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TO LET
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GO TO
ANOTHER
STORE
FOR WHAT
THEY WANT
WHEN YOU CAN
SELL IT
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ASK JOBBERS
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CONTAINS NO ACID

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AT THE EXH'N. ORLEANS MADE WITH A TESTING
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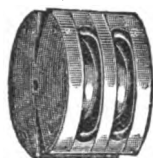
LOOKPORT, N. Y., U. S. A.

Anchor Brand Tackle Blocks and Trucks

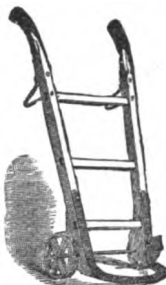
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Harcourt's Patent Swivel Hook. No. 31, if Iron Bushed. No. 32, if Roller Bushed.



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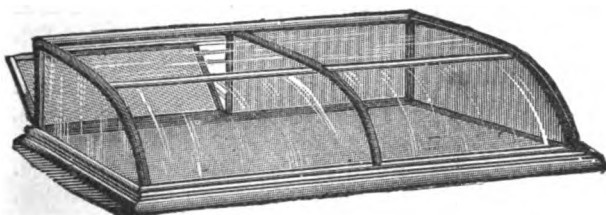
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Our line includes everything called for by the Export Trade in the way of Tackle Blocks and Warehouse Trucks, as well as a number of Specialties. Write for Illustrated Catalogue and Price List. Our Phosphor-Bronze Self-Lubricating Bushed Blocks are the best for heavy work. In ordering any of these goods, specify for the "Anchor Brand," and thereby secure the best the market affords.

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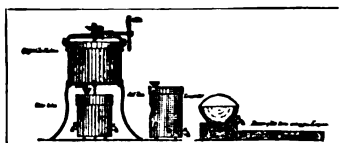
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C. J. PITT & CO.,**SHOW CASE MANUFACTURERS,**

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**Artificial Ice-Making
AND REFRIGERATION.**

Entirely Modified and Simplified.



Water at 100° Fah. can be lowered to 0° Fah. in one hour.

No steam-engine, no compressors, no gauges, no volatiles, no engineers.

A common laborer can run easily a machine making 50 to 100 pounds of ice per hour (instead of 6 H.-P.) A boy can run a machine of 25 lbs.

Nothing to get out of order, the machine being as simple as a butter churn.

These machines make Ice or Ice Cream, or a cold solution at zero which can be utilized for cooling soda-water apparatus, meat safes, &c.

The cost of the solution is nominal.

Practically no salt whatever is lost. The evaporator returns every particle of salt. If in a hot climate, run the solution on a wooden or asphalt floor, and you can dispense with the Evaporator when the sun shines.

The production of cold is mathematically certain.

Large profits can be made, and every family, druggist, hotel, ship and hospital in warm countries need these machines.

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SOLE AGENT and GENERAL MANAGER of the "DRY-AGENT PROCESS" of MAKING COLD.
Patented June 10, 1884, in the United States and foreign countries.**AMERICAN MACHINERY.**

WE manufacture Engines, Boilers, Steam Pumps, Machine-Tools, Water-Wheels, Milling and Wood-Working Machinery. Largest variety to be found in the hands of any one firm in the world.

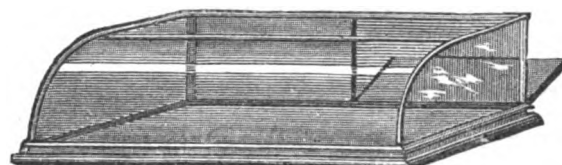
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Send for Terms, Circulars and Cuts, stating exactly what is required.

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Show Case Manufacturers**

175 PARK ROW, formerly 135 Chatham St., NEW YORK, U. S. A.
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On hand and made to order, Show Cases of the most improved designs in White Metal, Silver, Rosewood, Black Walnut, &c.; also in Celluloid, all colors.

ORDERS BY MAIL PROMPTLY ATTENDED TO,
Goods carefully shipped to all parts of the United States and Canada.

LINDLEY M. ELKINTON,

MANUFACTURER OF

Cylinder Tallow, —————→

White Mill Grease,

Engine Tallow,

←————— Soft Amber Grease,

Put up in Boxes of 25 lbs., 50 lbs. and 100 lbs. each,

532 ST. JOHN STREET, PHILADELPHIA, PA.

A. H. VAN CLEVE, General Purchasing Agent for the Camden and Amboy R.R. and Transportation Co., writes from South Amboy, January 22, 1872:

"L. M. ELKINTON has furnished the United Companies of New Jersey, since March, 1869, and during 1870 and 1871, over one hundred and seventy thousand (170,000) pounds Cylinder Tallow, which has given the Motive Power Department and the Steamboat Machine Department entire satisfaction.

"I believe Mr. ELKINTON'S TALLOW to be free from the acids so destructive to Steam Cylinders and Valves which is generally found in the tallow usually offered for sale in the market.

A. H. VAN CLEVE."

A. H. VAN CLEVE, Comprador General de la Compañía de ferrocarril Camden and Amboy R.R. and Transportation Co. se expresa como sigue:

SOUTH AMBOY, Enero 22, de 1882.

"El Señor L. M. ELKINTON ha estado proveyendo a las Compañías Unidas del Estado de New Jersey de sebo para cilindros desde el mes de Marzo de 1869 y durante los años 1870 y 1871, vendiéndoles más de ciento setenta mil libras (170,000 lb.), dando entera satisfacción al Departamento de Fuerza Motriz y así mismo al de maquinaria de los vapores.

"Creo que el sebo del Señor ELKINTON no contiene los ácidos tan perjudiciales a cilindros y válvulas de vapor que suelen encontrarse en los sebos que usualmente se ofrecen en el mercado.

A. H. VAN CLEVE."

PERMANENT EXHIBITION —OF— AMERICAN GOODS FOR EXPORT.

The undersigned having secured the new and spacious building, Nos. 24, 26, 28, 30, 32 and 34 New Chambers Street, and 50, 52, 54, 56 and 58 Rose Street, New York City, has inaugurated a Permanent Exhibition for the display and sale of American goods suitable for the export trade. Among the prominent houses who have already taken space in this Exhibition, and for whom the undersigned has been appointed agent for the export trade, are the following concerns:

KILBOURNE & JACOBS MFG. CO.,	Road Scrapers, Wheelbarrows, &c.
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MAST, FOOS & CO.,	Lawn Mowers, Iron Pumps, Iron Wind-Engines, &c.
JOHNSTON HARVESTER CO.,	Harvesting Machines.
ELYRIA SHEAR CO.,	Shears and Scissors.
ALASKA REFRIGERATOR CO.,	Refrigerators.
KALAMAZOO R. R. VELOCIPEDE CO.,	Railroad Velocipedes, &c.
BATTLE CREEK MACHINERY CO.,	Wood-Working Machinery.
N. A. OSGOOD,	Canvas Boats.
MYERS, HOUSEL & CO.,	Hay Carriers, Post-Hole Diggers, Force Pumps, &c.
T. C. SNYDER & CO.,	Iron Roofing, &c.
BUFFALO HAMMER CO.,	Forged Cast-Steel Hammers.
FULLER MANUFACTURING CO.,	Fuller's Patent Bit Brace.
ELBEL & CO.,	Saddlery Hardware.
KEYSTONE MFG. CO.,	Lullaby Cradle and Shade Rollers.
A. W. STEVENS & SON,	Feed Mills and Corn Shellers.
ROTHWEILER MANUFACTURING CO.,	Tinners' Tools and Machines.
THE CANTON HOE AND TOOL CO.,	Hoes of Every Description.
THE DANGLER VAPOR STOVE AND MFG. CO.,	Oil Stoves.
GENEVA MANUFACTURING CO.,	Carpet Sweepers.
FAY MANUFACTURING CO.,	Tricycles.
FOSTER BROTHERS,	Metallic Spring Beds, &c.
STAR MACHINE CO.,	Star Portable Forge.
A. J. NELLIS COMPANY,	Electric Steel Plows, &c.
THOMAS KELSALL,	Office Desks.
HUNTER TOOL CO.,	Edge Tools, Mill Picks, &c.
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ROLLER CHAIN BELTING CO.,	Chain Belting, &c.
BAUM'S CASTORINE CO.,	Axle Oil.
SENECA FALLS MFG. CO.,	Wood-Working Machinery.
VANDERGRIFF MFG. CO.,	Washing Machine, &c.
BROWN COTTON GIN CO.,	Cotton Gin.
THE CROSS PEN CO.,	Stylographic and Fountain Pens.

AND MANY OTHERS.

The above premises are centrally located, easily accessible from any part of the city, and have a frontage on New Chambers Street of 118 feet. Visitors will be able to see to best advantage all the goods displayed for Exhibition and sale. Correspondence is solicited. Orders filled promptly and largest discounts given.

TO FOREIGN MERCHANTS.

THE undersigned, having established a PERMANENT EXHIBITION at 24, 26, 28, 30, 32 and 34 New Chambers Street, in the City of New York, for American goods suitable for export, and having accepted the export agency for a number of the most prominent American manufacturers, is desirous of opening correspondence with foreign merchants, with a view to establishing agencies in different centres throughout the world.

Acting under special instructions from American manufacturers, the undersigned is in a position to make the most favorable arrangements with firms in good standing who are ready to take the agency of certain specialties, and push the sale of same.

When writing on this subject, please give full information relative to the class of goods wanted and facilities for disposing of same, together with references as to financial standing.

A LOS NEGOCIANTES EN EL ESTRANGERO.

EL suscrito, teniendo establecido una EXPOSICION PERMANENTE en los números 24, 26, 28, 30, 32 y 34 New Chambers Street, en la Ciudad de New York, para mercancías Americanas propias para exportación, y habiendo sido nombrado agente para exportación de un grande número de los principales fabricantes Americanos, desea entablar correspondencia con comerciantes establecidos en el extranjero con el propósito de abrir agencias en diferentes partes del mundo.

Teniendo celebrado acuerdos especiales, el abajo firmado se halla en disposición de llevar a cabo los arreglos mas favorables con las firmas de crédito establecido que deseen hacerse cargo de la agencia para la venta de ciertas especialidades.

Al escribirnos sobre el particular sirvanse darnos plenos informes respecto de la clase de artículos que se deseen, como así mismo de las facilidades con que se cuenta para las ventas, remitiendonos los solicitantes referencias acerca del actual estado financiero de su casa.

AOS NEGOCIANTES ESTRANGEIROS.

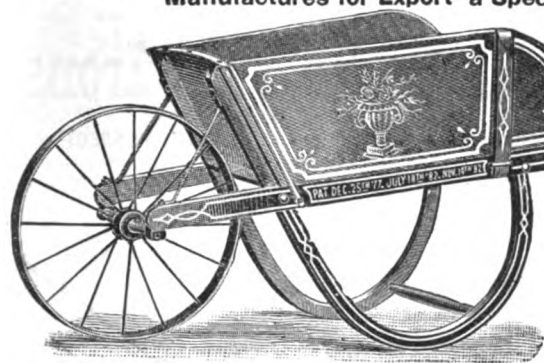
ABAIXO assignado, tendo estabelecido uma EXPOSIÇÃO PERMANENTE, em os números 24, 26, 28, 30, 32 e 34, New Chambers Street, na Cidade de New York, para Mercadorias Americanas proprias para exportação, e tendo accedido a agencia para exportação de um grande numero dos fabricantes principaes Americanos, deseja abrir correspondencia com mercadores estrangeiros, com o fim de estabelecer agencias em diferentes centros por todo o mundo.

Operando debaixo de instruções especiaes dos manufactureiros Americanos, o abaixo assignado se acha em posição de fazer os arranjos mais favoraveis com as firmas de credito firmado que quierão tomar a si a agencia de certas especialidades para procurar vendas. Em nos escrevendo sobre este assumpto queiram dar plena informação a respeito da qualidade de generos desejados e sobre as facilidades para as vendas dando outrosim referências quanto ao estado financeiro.

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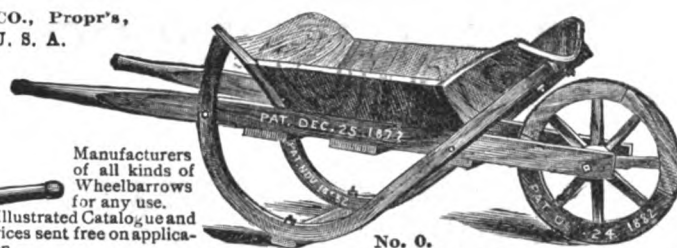
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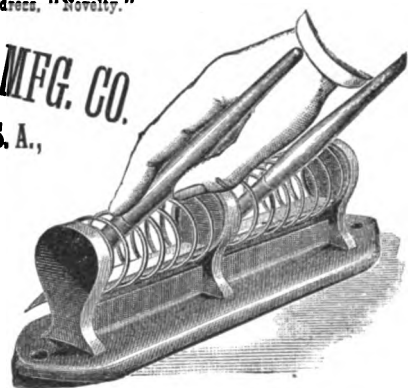
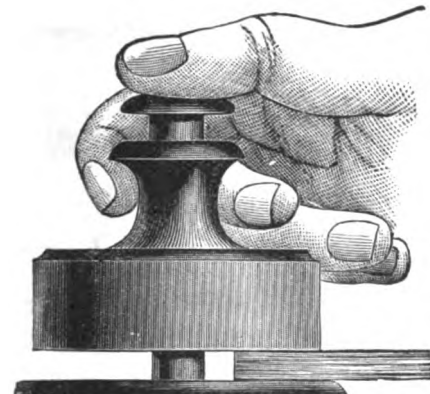
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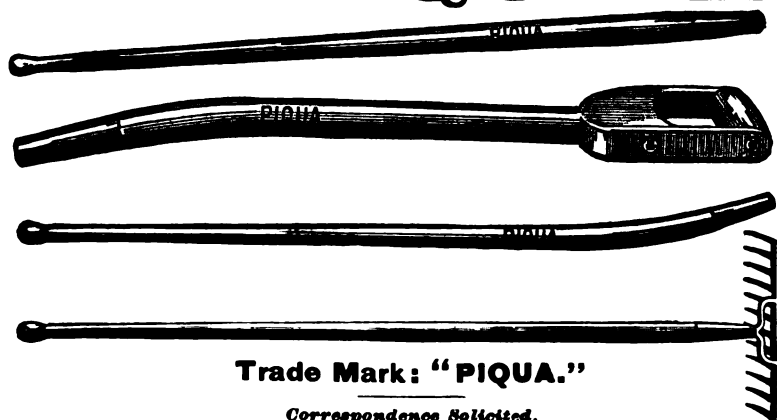
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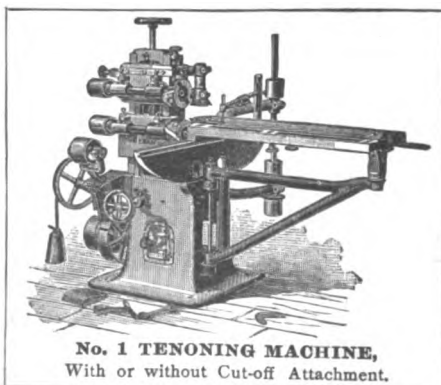
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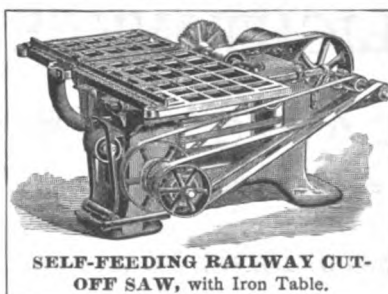
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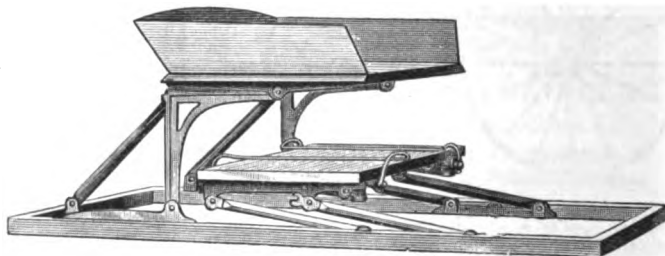
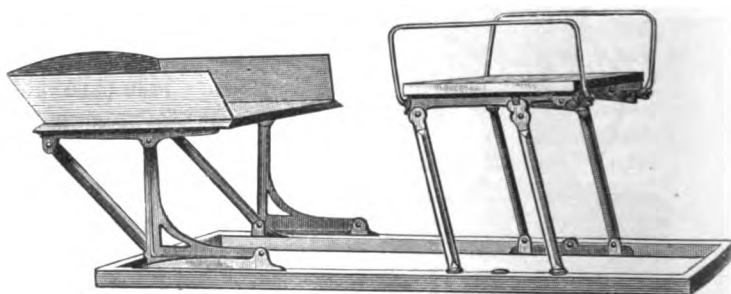
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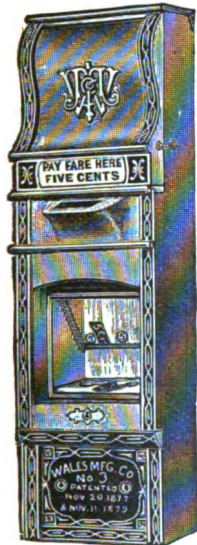
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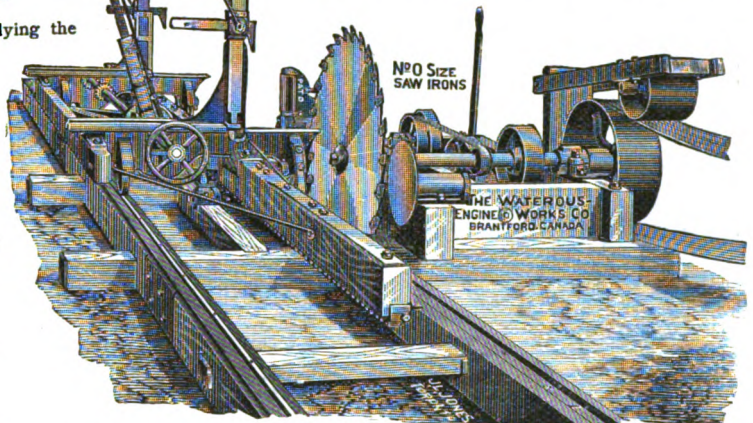
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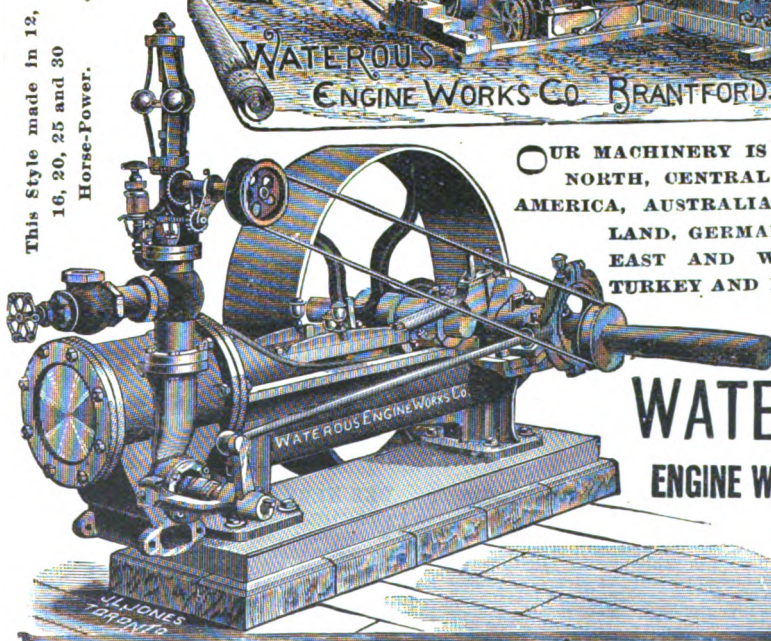
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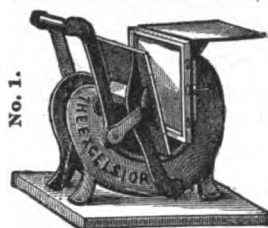


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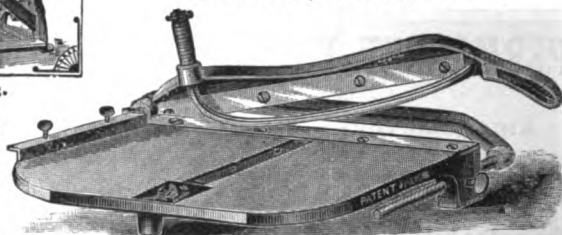
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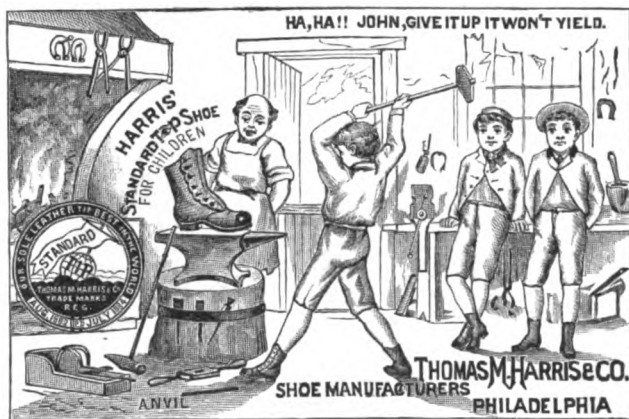
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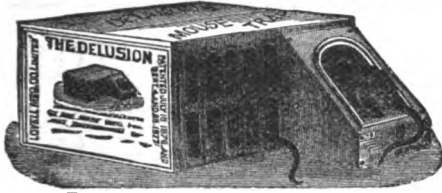
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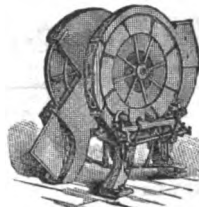


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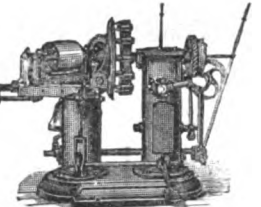
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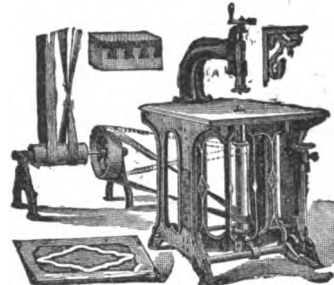
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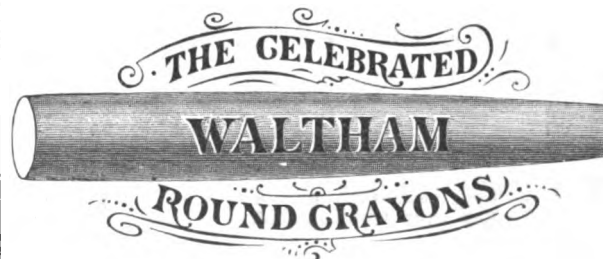


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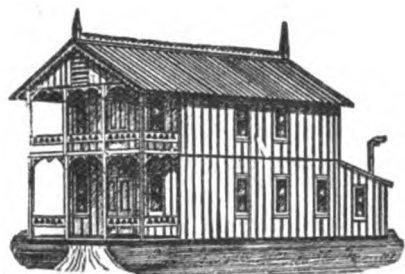
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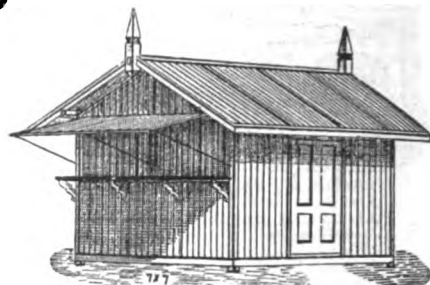
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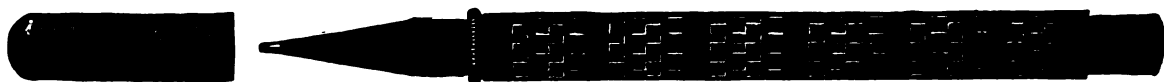
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BOYS' AXES, HUNTERS' HATCHETS,

Adzes, Broad Axes, Broad Hatchets, Picks, Mattocks and Grub Hoes.

GUARANTEED THE BEST TEMPERED GOODS IN THE MARKET.

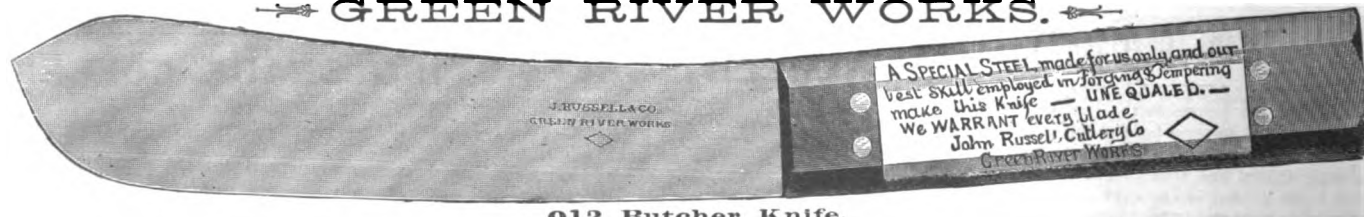
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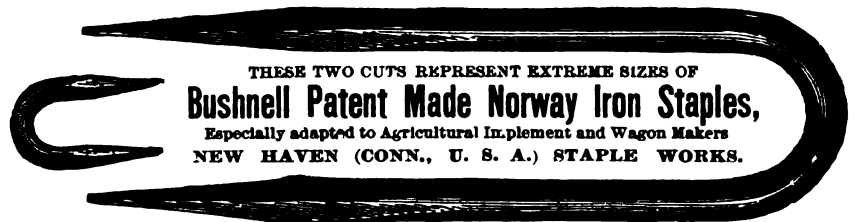
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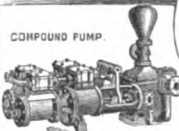
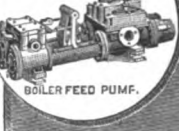
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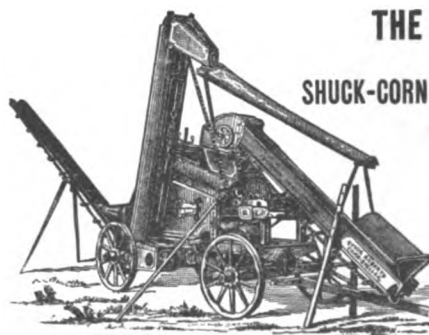


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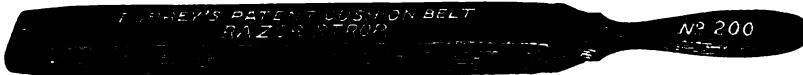
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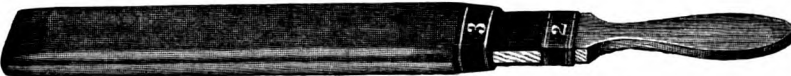


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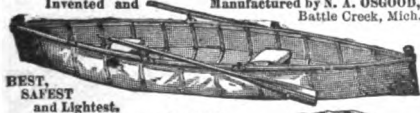
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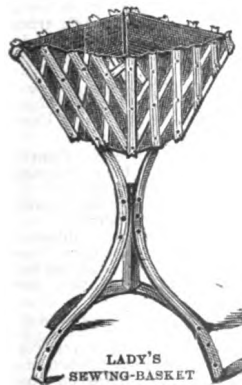
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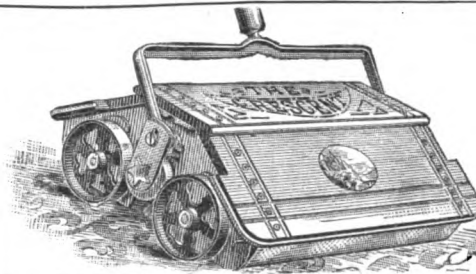
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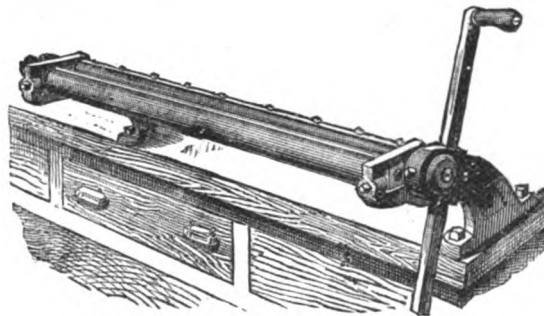
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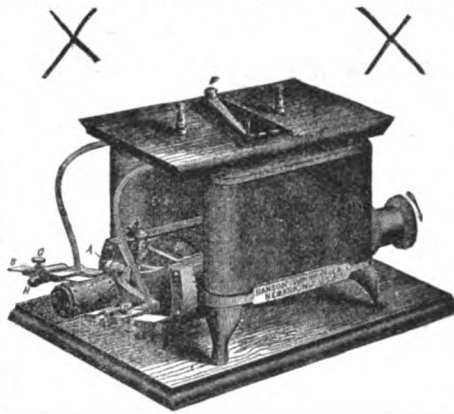
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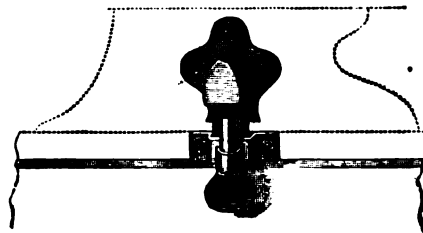
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R. R. ROUSE PATENT ELECTRO-PLATED WELL POINT.



market. A showing the openings before the wire gauze is soldered on. B after wire gauze is soldered on. C showing wire gauze and perforated brass soldered on. These Points are Electro-Plated with Pure Block Tin inside and outside before receiving the coverings, there being no raw iron to corrode or rust, or cause an unpleasant taste in the water. The Electric Process by which it is done is patented and exclusively owned and controlled by me for Driven Well Points in the United States. Warranted not to strip loose where soldered. Write for discounts.

R. R. ROUSE, Indianapolis, Ind.

1½, \$1.50; 1¾, \$2.50; 2, \$6.00; 2½, \$9.00;
3, \$12; 4, \$35; 6, \$75.

My 1½ Point is 24½ inches long and has 26 1½ by ¾ openings. Then countersunk two-thirds of entire surface of screen section.

This is a NEW PATTERN, EXTRA STRONG, will stand rougher use than any in the market.

ESTERBROOK'S

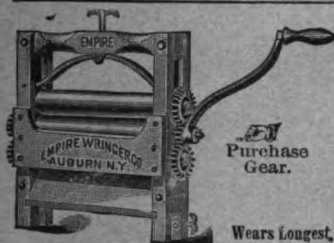


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With our "PURCHASE-GEAR" PATENT, which saves half the labor of any other Wringer, and makes the Rolls wear much longer. Made in sizes adapted to Family Use; also for Hotels and Laundries.

Also "Empire" Bench Wringers, Folding Wash Benches, Folding Cot Beds, and Hammock Supports.

The Empire Drying-Bars have large capacity, having ten arms each two feet long. Requires small space. Opens and closes easily. Folds up against the wall entirely out of the way.

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AUSTRALIAN AGENT, H. S. CHIPMAN, Sydney, N. S. W.



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Opened for use.

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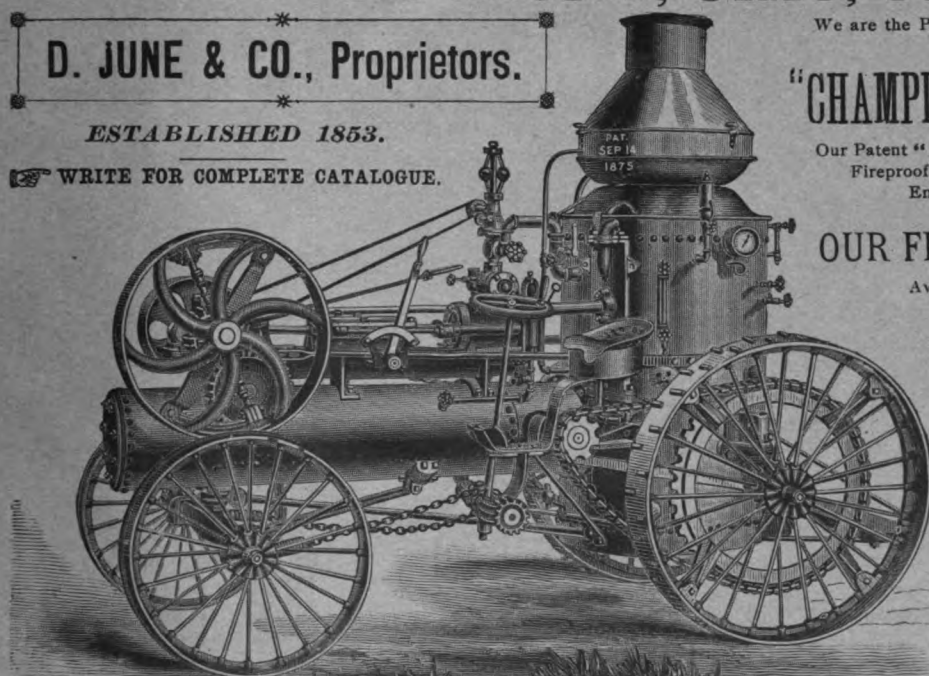
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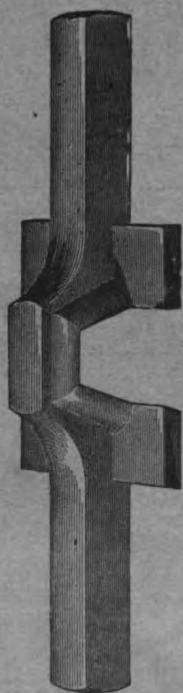
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Step Pads, Coach,
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Whiffletree Bolts,

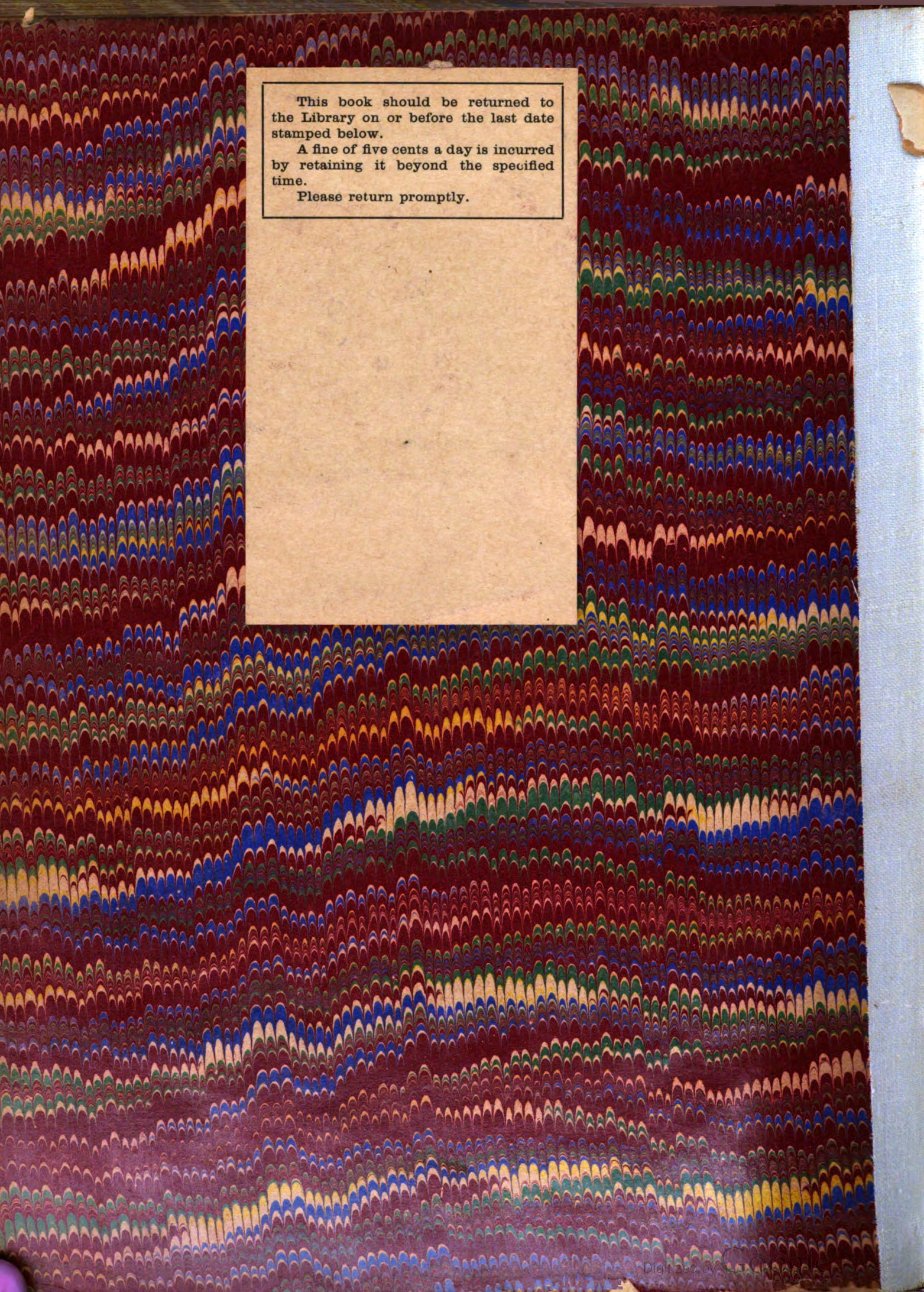
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Side Bar Shackles,
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Spring Bar Clips,
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Axle Saddle Clips,
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Brewster's Felloe Bolts,
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Safety Loops.
Body Loop Heads,
Forged Slat Irons,
Offsets,
Stay Ends,
Brewster Whif. Plates,

Perch and Bed Plates,
Head Block Plates,
Felloe Plates,
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